



## Choosing a printer is a lot easier than choosing a computer.

THERE are dozens of quality printers from which to choose. With quality price tags of around £250. The Brother M-1009, however, breaks all the rules.

Stays defiantly below the £200 barrier.

Though it has far more than its fair share of features, it maintains be extraordinarily low price of £100.05.

the extraordinarily low price of £199.95.

Travels at a steady fifty.

In the speed stakes, the M-1009 is certainly no slouch, being fully capable of up to 50 characters per second.

Providing bi-directional and logic seeking printing for normal

characters and uni-directional printing for super and sub script and graphics.

Prints on any paper.

Being an impact printer, the M-1009 will print on virtually

Being an impact printer, the M-1009 will print on virtually any paper, including letter headings, invoices and standard office stationers.

It will even print two copies together with your original.

A superb character recommendation.

In its price range, the M-1009 has a great deal more character than many printers.

96 no less, plus international type and graphic characters.

Reliability comes as standard.

Built to the same exacting standards as Brother's elite office

printers, the Brother M-1009 already has faultless credentials for reliability.

Its 9 pin dot matrix head, for example, has an astonishing 20 million character service life.

One printer that doesn't block out the light.

Many home computers tend to be a little on the large side. In contrast, the compact M-1009, at only 7 cm high, keeps a discreet profile.

Well designed, reliable – and conscientious.
The Brother M-1009.

orother.

The future at your fingertips.

DEPT P, BROTHER OFFICE EQUIPMENT DIVISION, JONES + BROTHER, SHEPLIY STREET, GUIDE BRIDGE, ALIDENSHAW, MANCHESTER M34 SJD. TEL: 061-330-6531 (01 LINES) 061-330 0111 (6 LINES) 061-330 1016 (4 LINES) TELEX: 669:092 BROTHER INDUSTRIES LIMITED, NG/GOR, JAMAN.

BOOTS, WILDINGS, SPECTRUM, JOHN MENZIES, MICRO MANAGEMENT,

## Make new friends,



Like Dr. Frankenstein, you can now create your very own monsters and aliens. As well as friends and heroes to defeat them.

You can also invent your own games. As simple or as complex as you care to make them. The only real limit is your imagination.

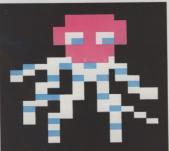
GAMES CREATOR

For the CBM64, the Games Creator comes with a step-by-step manual and three ready-to-play games. Each demonstrates some of the program's exceptional features: shapes, movement, speed, scrolling backgrounds, scoring, music, sound effects and many more.

And you don't have to know any program language to work it! There's only one thing better than playing games. And that's inventing them. \$1295



## and enemies.



#### GO-SPRITE

- A versatile, easy-to-use sprite designer and tester which makes full use of the facilities on the Commodore 64. Go-Sprite gives you:
- ease of use with icon driven commands
   simple animation of 32 sprites, with 255 frames
   easy handling of multi-coloured sprites
- easy handling of multi-coloured sprites
   overlays of up to seven layers
   User-friendly Go-Sprite can be operated

User-friendly Go-Sprife can be operated almost entirely by joystick alone. Lightpen and keyboard control options also included. Speedy loading program £9.95



#### VIIRRORSOFT

SOFTWARE FOR ALL THE FAMILY.

Available from Boots, W.H. Smith, Spectrum and all good software stockists. Write for a free catalogue to:



### **ASSEMBLER-DISASSEMBLER FOR YOUR CBM 64**

FASSEM 64 is the fastest machine language assembler of it's kind available

FACILITIES: • Assemble • Disassemble • Disk Commands • Mixed number bases (Hex, Decimal and

Binary - and conversions between them) OUser "helpful" utilities (including

Renumber, Auto, Delete)

THE FAST ONE

2½ times faster than it's nearest rival.

CASSETTE

\* £14.95

\* Also available on disk or cartridge please phone your order direct to:

**BUSINESS & TECHNOLOGY CENTRE BESSEMER DRIVE STEVENAGE HERTS** SG1 2DX PHONE (0438) 316561

(INTERPOD)

## Now the VIC 20 and 64 can communicate with PET peripherals



#### VIC and 64 users

Would you like to be able to access any of these peripherals from your computer?

- 13 megabyte disks (Commodore 4040 drive)
- 1 megabyte disks (Commodore 8050 drive)
   10 megabyte disks (Commodore 9090 hard disk)
- Printers including a wide range of inexpensive
- IEEE and RS232 matrix and quality printers

  IEEE instruments such as volt meters, plotters etc.
- Now you are no longer limited by the VIC or the 64's serial bus. Simply by attaching INTERPOD you can vastly increase the power of your VIC 20 and when used with the new 64, INTERPOD turns the computer into a really powerful system.

With INTERPOD the VIC and 64 become capable of running really professional quality software such as Word-processing. Accounting. Instrument control and many more.

NTERPOD will work with any software. No extra commands are required and INTERPOD does not affect your computer in any way.

#### Using INTERPOD is as easy as this:

Simply plug INTERPOD into the serial port of your computer, power-up and you are ready to communicate with any number of parallel and serial IEEE devices and any RS232 printer.

Simply incredible at

Dealer enquiries welcome



Marketing

Cheetah Marketing Ltd., 24 Ray Street, London EC1R3DJ. Tel:01 833 4909. Telex: 8954958.

ontent

#### News

The latest news and views to keep you in touch with what's happening in the world of Commodore





#### Ankh Competition

Win the thinking-person's game. 25 copies of Ankh, the unique abstract computer puzzle, must be won in our absorbing

#### Letter from America

US Commodore-watcher, Dan Gutman, files another report. This month he looks at some new software about frogs - Frogger was never like this.





#### Whichnet? Micronet 800 and Compunet which one to choose?

The Commodore 64 is probably the only home computer to have a choice of two communications networks. Both Compunet and Micronet 800 are jostling for position to get you hooked into the outside world. Which one should you choose?

#### Good vibes from SID

How to get a 'vibrato' effect This month, Tom Jeffries has been teaching Sydney Sawtooth and

the rest of the band how to program the vibrato effect you get from musical instruments and wailing country singers. Going into Assembly Four Commodore 64 assemblers



reviewed Time to round up the assemblers currently available for the Commodore 64. Ken Ryder and Dermot Williams have been putting through their paces Audiogenic's



Advertising Manager

Advertises Executive

Advertisement copy control

Eugene Lacey Bohdan Buciak Mike Pamenden Lynda Skerry Chris Durham John Ransley Tom Jeffries

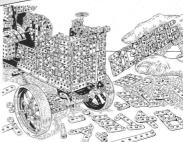
lulie Madigan

Julia West phine Collins

Publisher Rita Lewis Registered Offices iory Court, 30-32 Farringdon I

London EC1R3AU 1984 An EMAP Publication

01-251 6222 0732 351216



#### Top of the Form

Educational software for youngsters

With its large memory, good graphics and sound, the Commodore





#### No Dice - board games for the 64

If the latest arcade and adventure games can't dispel your longing for old favourites like chess, Monopoly and Scrabble, you'll be pleased to know that a range of board-game software is available for the 64. But is in



The ups and downs, and ins and outs of the 64 software world





Victuals for Vic and 64

This month's offerings include a music program for the 64. 'Ureka' for the Vic - and a whole lot more.

Chris Preston concludes his series on better programming



Book look This month, our regular book page looks at books on the 1541 disk





#### STAB in the back for Basic Introducing the STAB language

Professor Andrew Collin of Talent Computer Systems introduces the STAB language his company uses to write programs for the Commodore 64. Both compiled and interpreted, it offers a lot more than Basic.

#### DIY Forth

Another installment of Richard Hunt's enlightening Forth series



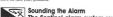


#### Adventuring into the Valley This month our regular adventure boffin, John Ransley, takes an in-

depth look at the game that's making all the noise - Domarks's

#### Dallas on business

Like most people, Karl Dallas simply loathes doing his accounts. But he reckons an accounts package for his Commodore 64 might do the trick. So he's looked at programs from Gemini and Dialog to see if they will



The Sentinel alarm system reviewed Rested from his Home Control series, Chris Durham looks at a commercially available alarm system controlled by a Commodore 64.



Last but not least, Tommy faithfully answers your computing





#### Commodore Corner

Commodore big-wigs must be glowing with pride and joy (rather like a Miss World or European Song Contest winner) because their very own pride and joy, the Commodore 64, has just been voted Home Computer of the Year for the second year running. Voted by whom, you

Judging was done by seven international computing magazines; from the UK Germany, Italy, France, the Netherlands and the USA. None of them, by the way, were Commodore 'dedicated' magazines. That spurred Commodore on to make the claim that the 64 is currently the best-selling home computer in the world - a true rags to riches

Meanwhile, Commodore's latest machine the Plus/4, is in for some heavy pror Computer hardware retailers, the Spectrum Group has organised a competition in conjunction with intended to be the 64's big brother

What do you do? Well, just pick up a leaflet from any Spectrum store and enter the not very original competition to place six of the Plus/4's attributes in order of merit. Funnily enough. most people thought Commodore was plugging) doesn't even get a

The winner (and three friends) ts a seven-night holiday in Florida, squeezing in Disney World and the Kennedy Space Centre. You'll also get a holdall full of money (£2,500) to spend. Ten runners up get £100 gift vouchers. Funny, nobody wins a Plus/4? You'll have to hurry. though, closing date is December

#### New Year's games

64 owners are in for the cream of the new games launches for Christmas and the New Year. Gone are the days when a top

game appeared on the Spectrum first and was converted to the Commodore months later. With the latest market research from Gallup showing

Commodore neck and neck with Sinclair in terms of micros sold. many of the software houses are launching their products simultaneously for both systems Commodore owners are

further privileged in that they can choose from the wealth of excellent Commodore software being imported from America by the likes of US Gold, Statesoft.

Ariolasoft and Beyond Most exciting of the games in the US pipeline is Conan from Datasoft. The game is officially licensed from Lucas films and will challenge the muscle-bound star of comics and films to fight

his way through seven progressively difficult games screens Action takes place in a castle

chamber where flame monsters and flying dragons must be slain by Conan with his mighty sword if he is to win immortality

Beating Conan in to the shops will be another hero of the big screen - Indiana Jones protagonist of Raiders of the Lost Ark, and Indiana Jones in the Temple of Doom

Indy's game is not based on any one of the films in particular but features a number of swashbuckling challenges typical of the screen adventures. There is an added challenge in Indiana Jones as the player has to work out what the objective of the game is as there are no specific

Indiana Jones and Conan will be the first launches in a new series of imports from US Gold entitled Famous Names. The games will be in the normal IIS Gold price range - £9.95 for cassette and between £12.95 and £14.95 for disk.

Conan is not expected to be in the shops until late January Other titles appearing on the Famous Names label will be a

More muscle for your 64

new racing car game from Cosmi that US Gold are hoping will be endorsed by Nicki Lauda Stuntman Lee Majors jumps

into the picture with the latest game from Elite - based on the TV show the Fall Guy. The player can take part in a numl of dangerous stunts including train-walking and being whisked off the top of a burning skyscraper by helicopte

Spectrum game kings Ultimate are launching their first Commodore game for Christmas with Jet Pac - a game that challenges you to assemble a rocket, fuel it, and blast off to another planet. Also hoping to according to Audiogenic. double the revenue from their Spectrum titles with Commodore conversions are Beyond Software who will launch Lords of Midnight and Doomdark's Revenge for the 64 in the New

Mosaic are attacking the Christmas market with three new game-book adventures. The Saga of Erik the Viking, The Nomad of Time, and The Stainless Steel Rat Saves the World get the computer game

Year.

Still no sign of the Great Space Race from Legend, the long awaited sequel to Valhalla. This one could still just steal the show before Christmas although it will be hard pressed by Ariolasoft who are launching the entire Electronics Arts range at UK prices

One thing is certain -Commodore owners with a bit of spare cash to spend on software in the New Year will have dozens of good games to choose from

SHORTS

Freddie and Alice on tape: good news if you've always envied fortunate disk drive owners with their tuneful copies of Audiogenic's Frantic Freddie. The antics of that greeds telephone engineer are now available on tape, complete with Novaload, for £8.95. The same goes for Alice in Videoland which has a total of 90K machine code. Apparently, parts of the program have to be loaded whilst the game is in progre-Thanks to Novaload, that's now a feasible proposition on cassette.

SHORTS Blunder in Reverse: Vic Victual enthusiasts will have spotted our blunder in the November issue: we gave the assembly code but

not the Basic loader for the Reverse routine. Here it is: 10 FOR T-688 TO 716 20 READ A 30 POKET & 40 NEVE 50 DATA 169, 0, 133, 0, 169, 30,

133, 1, 160, 0, 177, 0, 73, 128, 145, 0, 230 60 DATA 0, 208, 246, 230, 1, 165, 1, 201, 32, 208, 238, 96

SHORTS

Doublethink: faced with the problem of dealers who are no longer falling over themselves to stock Vic games, Anirog has compromised by producing duo tapes which play on one side for the 64 and on the other for the Vic (with 16K expansion). That may save shelf space for dealers. but what do you do if one side won't load? Eight titles are available: in the £5.95 rance there's Tom Thumb, Las Vegas, Minipedes and 3-D Time Trek. For £7.95 you'll get Bongo, Flight Path 737, King and Skramble - at least you'll have more people to swan games with

#### SHORTS

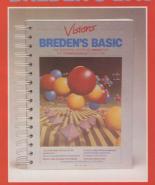
SID blunder: we missed out a couple of program lines in last month's article on the SID chip. The lines will let you generate

10 SID = 54272- FOR I. - STD TO SID + 24: POKE L,0: NEXT: POKE SID + 24, 15: POKE SID + 13, 240 20 POKE SID + 11, 129: FOR F - 0 TO 255: POKE SID + 8, F: FOR T = 0 TO 10: NEXT: NEXT: POKE SID + 11, 128



NEW FROM // ISTOMS

### **BREDEN'S BASIC**



THE ESSENTIAL EXTENDED BASIC for the Commodore 64 incorporating HIGH RESOLUTION COLOUR GRAPHICS, STRUCTUREL PROGRAMMING TECHNIQUES, MULTI-COLOUR GRAPHICS, USER DEFINED CHARACTER GRAPHICS, MUSIC and SOUND SYNTHESIS and TOOLKIT FACILITIES JUB many other useful features.

BREDENS BASIC has more commands (135) for the programmer! use than any other EXTENDED BASIC currently available, and drives the SOUND and GRAPHIC chips to their fullest extent short of writing in MACHINE CODE.

BREDENS BASIC is from VISIONS and as with all our products we've created a well written and USER FRIENDLY PROGRAM which is, the MOST COMPREHENSIVE BASIC yet available for the Commodore 64 Juing BREDENS BASIC can only enhance the Commodore 64's versatility and its programmers ability.

BREDENS BASIC comes with both disk and tape, effering the user the facility to upgrade at such time as he acquires a disk drive. Running in LESS THAN 8X FREDENS BASIC allows plenty of room for program development with a HIGHLY COMPETERISTS.

MANUAL with a set of HELP-UL HINTS in the appendices. The USER MANUAL with a set of HELP-UL HINTS in the appendices. The USER MANUAL with a set of HELP-UL HINTS in the appendices. The USER MANUAL with a set of HELP-UL HINTS and EASY TO USER MANUAL WITH A SET OF THE APPENDIX SET OF TH

Visions Bredens Basic comes with a 180pp easy to use manual plus disc and cassette in a presentation box.



Available from leading stockists including Boots and W H Smiths or direct from address below

CS.M. LIFD. SUITE 38, STRAND HOUSE, GREAT WEST ROAD, BRENTFORD



## **ANKH Competition**

Ankh is a unleus puzzing graphic odvenines from Bey and which doesn't use lext but invites you to manaeuver your Mindprobe through a series of challenges.

These are treasures to be collected along the way, tools which may help you out in anxieved situations. The collection of control interest your determine your next occurs of action.

Gradually the challenges build up as you bother through each problem, fitting of the yop date to go not problem the way of the control of a challenges to the control of the control of the challenges to the control of the control of the challenges to the control of the challenges to t



et. ian

ttle

The doors slide back in the direction of the arrow and may block another pas

Control 1 # Moves the shadow probe to the

Control 2 & Stops the shadow probe Control 3 # Makes it fire downwards

Control to halt shadow probe

Control to fire from bottom of

E Left firing cannon

Mindprobe

ORDER OF MOVES

The competition is not open to employees of EMAP Business and Computer Publications. Entries should reach this office by no later than 20th January 1965. The editor's decision is final and no correspondence will be

NAME	
ADDRESS	

SEND ENTRIES TO: ANKH COMPETITION, COMMODORE USER, 30-32 FARRINGDON LANE, LONDON EC1R 3AU

# UALITY CONTROL ROM CREATIVE SPARKS

For those who demand excellence











#### CREATIVE SPARKS Available from All good computer software stockists. Method of payment By cheque or PO (no cash) made payable

Send me (tick as required) □ JAVA JIM TNCE163 (C64) £7.95

- COUNTDOWN TO MELTDOWN TNCE273 (C64) BIRD MOTHER TNCE263 (C64) £7.95 £7.95 WING COMMANDER TNCE203 (C64) £7.95 My local stockist's address
- Game/sat£7.95 each

		30
£		
	£	: £ :

TOTECS	
or	
Enter card no.	

- ☐ By Access ☐ Barclaycard
- Sign below:
- Credit card sales: UK buyers only.

296 Famborough Road, Famborough, Hampshire, GU14 7NF.

Address

#### Jansen interface

There's now a supermarket trolleyful of printer interfaces available for the Commodore 64 ranging from cheap offerings that need RAM-based software to drive them and offer few

facilities to the expensive 'intelligent' interfaces which do almost everything but boil a kettle. The new Print - 64 device from German-based Janser Electronik, costs £83 and falls into the latter category.

It's a Centronics interface that nects to the 64's serial port. No extra software is needed as the device has its own processor 8K of RAM acting as a buffer and an EPROM chip. It's especially adapted to drive a 9 by 9 dot matrix printer like the Epson of Star machines, so you could achieve print speeds up to 180

characters per second. As expected, the device will print the complete Commodore character set both normal and inverted. Hi-res screen dumps can also be taken in four sizes. Those can be normal or inv Pictures you've created with a 'paint' package can be dumped to the printer, too, though obviously not in colour. The device compensates for that by selecting a different shade of grey for each of the sixteen

But to do that, you'll need to use special commands on the floppy disk supplied (a cassette version should soon be available). That disk also contains a tutorial, complemented by a list of secondary addresses on the device's outer casing. The device is available now on mail-order direct from Germany, More details from: Jansen Electronik, 5090 Leverkusen Str. Unter Olbach 1, Germany.



ou. It costs £29.95 and co pard, using no extra software. It feature and a Return key. More details on 0202

#### Books go soft

It's not news that book publishe are foraging a trail into the the computer software market. But most of them have, so far, produced only educational

software for children. Now, Slandford publishers is producing a range of software for the Commodore 64 that complements some of its bestselling titles - of course, you get the book with the tape.

The packages, according to Blandford sales director, Chris Lloyd, are designed for people who require "a more serie application relating to his or her leisure and domestic activities the tape enables you to make better use of the book". So what's Blandford offering?

First there's rock musician Dave Stewart's Introducing the Dots book, which teaches you how to read, write and arrange music. That process is now complemented by the

accompanying tape. Then there's Plan and Design Your Garden, for which the program allows you some on-screen planning The Prediction Birthday File package contains the Prediction

Book of Astrology and a tape that lets you keep tabs on birthdays and astrological profiles.

If your stars are more romantically inclined, there's The Love Oracle package which contains Guy Damian Knight's book The I Ching In Love. Apparently, this has something to do with predicting questions of love, relationships and marriage. Each book-and-tape package costs £14.95. More details on 0202 671171

#### SHORTS

Hold the front page: committed users of Wordcraft, whether it's the standard Pet version or the newer Wordcraft 64, now have their own Wordcraft-dedicated newspaper, published by Dataview Wordcraft. Called Wordcraft Express, it's designed to provide users "with a forum through which they can express views and opinions". More than that, the first issue contains a feature on an academic who's used Wordcraft to write a book in Old Icelandic. Whatever next? Copies can be obtained by writing to Amit Roy, Wordcraft Express, Radix House, East Street, Colchester CO1 2XB



The long awaited sequel to Andy Spencer's ecormously successful International Soccer cartridge is on its way. Sources inside Commodore tell us that the game is now in the fine tuning stage. Its graphics are every bit as sensational as the football game's were, with cheering crowds, adverts on the stadium hoardings, and authentic movement of the ball.

The Commodore Soccer game was the most successful game ever produced by Commodore themselves - most of the hits coming from third party independents.

As well as the basketball game there are also rumours of a follow up to the first soccer cartridge - International Soccer II.

The basketball game is also thought to be produced on cartridge and will have a price tag of £9.95.



## the six-four supplies co

p.o. box 19, whitstable, kent ct5 1tj Access/Visa Orders: 0227 266289, 0227 462600

#### ... Number One For Choice...

The Six-Four Supplies Company is the pretrier independent main-order supplier of products for the Commodore 64. Shop by mail-order in confidence—and experience the kind of service enjoyed by thousands of regular customars in the UK, Europe and as farcustomars in the UK curpoward as farrecreational, educational and business contained to the confidence of the consistence of the confidence of the contence of the confidence of the contence of the contence of the confidence of the contence of the con-

but free to customers).

AMERICAN IMPORTS - PRICES
PLEDGE: We are prepared to offer the
lowest prices on all imported software.
Phone for a quote if you are in any

doubt!
Please add 50p P8P for orders under £20 (Europe £1 each item, Airmail elsewhere at cost), Make chequiss/P0 payable to THE SIX-FOUR SUPPLIES

#### DISCO

£9.95
(Softcell) - cassette
This is the most powerful tape to
disk transfer utility you can buy. No
program rewelfing necessary.

TAPER

(Softcell) – cassette

Make security backups of your own
BASIC/marking, code, programme

SIC/machine code programs ry, very powerful. FASTBACK

£9.95
(Softcell) - cassette
Can make backups with a difference - they will load up to seven times faster than the original. Im-

pressver SPECIAL OFFER: All three – Taper, Disco, Fastback – for £25.75. Dealer enquiries welcome

#### DISKEY £36

Diskey gives your Commodore 64 the file handle gives of the disk capabilities a serious used to the serious serious serious properties and the serious your control of the serious your to examine, copy, or modify any disk, Rescue data from a crashed disk, or simply recover scratiched files, For one or hee disk units. Also available, for shigle disk users, is the slightly less versities but not less powerful SUPPER-DISK solling but not provided the powerful SUPPER-DISK solling to the disk users.

#### PAPERCLIP

(Batteries Inc) - disk
LOOK AT OUR LOW, LOW PRINCE!
If you've been saving up for a
wordprocessing program then this
is the one to get. For those that acbally do know, this is still the best
in a very strong field. With 80-colum display mode. Can be used
with 80-column board (59). Full
selection of other WP programs
available.

#### MULTIPLAN £95

(Microsoft/Nesware) – disk Easy to use but very powerful spreadsheet. Option to define cells by word labels. Sorts columns/rows numerically or alphabetically. Output to Commodore printers only. Very highly recommended. (Companion books on its use

#### CALCRESULT £95 (Handic) - cartridge - disk

Has true 3D (multipaging) facility and histogram features. Versions for Commodore and Epson printers. This is a very powerful and much respected spreadsheet. Single page version £47.50 (carfridge).

#### MIKRO ASSEMBLER

Supersoftj – cartridge
Features three pass assembler, unimited labels, source files can be linked,
moritor, screen editor, disk or tape operation, Pass AUTO, DELETE - PORMAT,
FIND, NUMBER, DISASSEMBLE, OUT
and TABLE. Moretor has standard TM
commands piles bunft, fransfer and discommands piles bunft, fransfer and dis-

#### HS-64 ASSEMBLER DEVELOPMENT SYSTEM

UCL Sethward - cartridge risks at the statement you need to write machine code. Our process of the statement you need to write machine code. The statement is statement of the s

#### KOALAPAD £80

incensis seculospi-castro deals.

This is really a great device for getting even the youngest of side to realist to realist to the prompts of side of the prompts of side of the prompts of side of made of the side of the si

#### MICRO-SIMPLEX

(Micro Simples) – disk

If you're a cash business and need to
maintain an accurate such trail and VAT
record, this is the program for you' Will
save hours of paperwork. Fully recognised by the authorities – It's based on
the Simplex book-keeping system
Suitable for schemes A to F. Demo

#### THE LAST ONE 957.50

(B)-141 "Bystems) - disk
SFECIAL OFFER PINICET Program
generator that hese you from the
drudgery of writing fallor-made
data management programs.

database common sealable

#### S.A.M. £48

1,48
(Innot) – disk
This is SOFTWARE AUTOMATIC
MOUTH, a quite outstanding piece of
software which gives your \$6 limitiess, speech synthesis capability. Others English test-to-speech or phonetic injust, in direct or program modes. Full control over pitch, speecl inflexion. Expensive
maybe, but there's nothing like it, even

#### SUPERBASE 64

E88
(Precision) - dak

Really excelent database management program, still at our special
ment and a munt for all serious 64 suser.
Can be used for anything bron mailing lists to stock control and invesiing, Lefts you tailor at database, its
prompts and degree to your existing lists to stock control and invesiprogram always remains the same.
Program always remains the same,
still at the section of the section of the
eastly to use yet powerful beyond
the needs of men mortals STEPs
at the section of the section of the
plication modified policies.
Supprison - also now available.

#### FLIGHT SIMULATOR II £40/£33

(Sublogic) – disk or tape
This is so good the authors think you
can learn "the ropes" as far as instrument control and flying are concerned.
Whatever, the simulation is quite excelient. Expensive but it's the best on for
the 64 by far – and a MUST for the collearning.

#### SPECIAL OFFERS PILOT (d) £40

ASSEMBLER 64
(d) £45
LOGO
(d) £57
EASY CALC 64

(r) £40 MAGIC DESK (r) £40 SIMONS BASIC

(r) £45 EASY SPELL (US) EASY MAIL (d) £20

Superbase and
Paperclip
bought together:
£155!

Addidition of the control country and a country and

#### BOOKS

There are some 64 books specifically about the 64! We have a full list (50p) with a description of each, plus details of many other books of interest. We can supply ANY book at cover price plus 75p each towards P&P.

#### ANATOMY OF THE 1541 £10.95 Really excellent book for those keen to get to grips with 1541 use

Absolutely everything you need to know – includes ROM listings, use of programs such as COPYALL on the test/demo disk.

COMMODORE
64

#### 64 HOME COMPANION

COMPANION £10.95

myou want more betains and expansations on the use of some of the better quality "serious" USA software for the 64, this book is an invaluable source of reference.

PRINCES CORRECT AT TIME OF GOING TO PRESS. Let us quote you if you manage to find lower!

Vens

#### Pretty Basic stuff

Following in the wake of Simon. BC and David comes Breden's Basic from Visions Software Factory. Described by its progenitors as "the most comprehensive Basic available yet for the Commodore 64", here's a quick roundup of facilities offered

The program has 135 commands running in 8K of RAM, incorporating hi-res colour graphics, structured programming techniques, multicolour graphics, user-defined

characters, music, sound synthesis and toolkit facilities.

The program comes in a library case and is well documented with a large and well-designed manual. Still, at just over £24, it doesn't come cheap. Sensibly Visions has packaged up both a tape and a disk so you can ungrade to a disk drive without having to throw the whole lot away. We're putting it on our future review

BREDEN'S BASIC

#### SHORTS

Crib card: Phoenix Publishing has produced what it calls a "Crib Card" for the Commodore 64. The card folds up rather like a map and contains a wealth of reference information that should save you ploughing through the Programmer's Reference Guide. There's a section on Basic which includes syntax conventions. functions, commands and examples of how to structure Basic statements. Then there's the 64's character set, a default memory map, colour and control codes, SID and VIC chip registers, error messages - and a whole lot more. All that for £1.99. his work cut out.

SHORTS

New man at Commodore dore has appointed a certain David Gerard as its new UK Marketing Manager, the aforementioned having marke telephones and calculators before joining the great Commodore empire "1985 will he marked as the year that Commodore broadened its horizons", opines Gerard. What horizons would they be? Well, to regain Commodore's "historic dominance" in the business market. With still no imminent appearance of the much publicised Commodore PC and 28000 machines. Gerard will have

Fast loading by SHORTS End of the Masoperade: Haresoft has now released the

second and final part of its Hareraiser game, Called Hareraiser-Finale, it will also help you solve the first puzzle, putting you well on the road to winning the Golden lewelled Hare, or £30,000. Haresoft reckons the winner will face a difficult decision whether to go for the money or the Golden Hare - we wait with haited breath

 SHORTS Turbo on disk: Supersoft has developed a turbo loading utility which claims to speed up loading times from a 1541 disk drive by around three times. It's been incorporated into Supersoft's new Busicalc-3 spreadsheet, Don't worry if you've bought the sluggish version, the company is offering a free upgrade. More

details on: 01-861 1166.

SHORTS First for books: book lovers will ember that we reviewed two rather good books for the Commodore 64 from US publisher Abacus in the October issue. The range of four titles is now available from First Publishing in this country at a cheaner price There's Anatomy of the 64 (£10.95), Anatomy of the 1541 Disk Drive (£10.95), Tricks and Tips for the 64 (£10.95) and The Commodore 64 Machine Language Book (£8.95).

#### Learning to truck

Applied Systems Knowledge (ASK) the accomplished education software house which wrote Face Maker (amongst others) for Commodore and has written a large stack of educational programs for the BBC and Electron machines, has now released a game under its own name for the Commodore

Called Time Trucker, it aims to help 8-14 year old children understand the relationship between the twelve-hour analogue clock (the one with the hands) and the 24-hour digital types

It also explores the relationship between distance and time by getting you to drive a delivery truck, keeping to your time schedule and working out the best route - oh, and there's the inevitable road repairs to watch out for. With a little skill, you might become the Super Trucker.

The game comes on cassette. costs £7.95 and includes what looks like a useful twelve-page pamphlet. Unlike most educational games on tape, this one features Novaload so you're up and trucking in just over two minutes

America

## Letter from America The soft side of the States

Dan Gutman reports

Last month, Dan Gutman made us all drool by telling us about the new American Commodoreorientated hardware we can't buy across our end of the Atlantic. This month, he's rounded up some unusual US software. Do you like playing with frogs?

I had the chance to meet your own Douglas Adams the other day. He was in New York for the Guide To The Galaxy - the interactive novel. Infocom is distributing it in computer stores Simon & Shuster is shipping it into book stores. It's very exciting. This is the first time a "name" author has written an interactive book. I think it ushers in a new age of literature, the same way The Jazz Singer revolutionized the movies

Adams isn't the only author who has gone interactive. Trillium Software (which is really big-name writers Ray Bradbury (The Martian Chronicles), Arthur C Clarke (2001: A Space Odyssey), Robert Heinlein (Stranger in a Strange Land), and Andromeda Strain) to turn some of their books into graphic

adventure games. Bradbury's Fahrenheit 451 is already out for the Commodore, and I like it a lot. The came starts with you waking up near a pond in Central Park, and that's just a few blocks from where I live. None of the Trillium games have the depth of Infocom's alltext adventures, but they do have pictures, and that's important for some people. You can bet that other big name authors will be going interactive too Is print dead? I asked Douglas

Adams that question and he replied, "Absolutely not. When radio came out, everybody said books will disappear. When television came out, everyone said radio will disappear. People themselves. But there's something a book which nothing else will

replace. You can't take a computer game on the train.

#### Frogger falls apart

Probably the most outrageous piece of software ever has just come out for the Commodore Operation: Frog, by Scholastic. It lets you do a simulated frog dissection! Those days of hacking up live frogs in biology class may be over now that we can do it on-screen. No blood, no

You use the joystick or keyboard to remove 23 internal organs (including everybody's favorite, the gall bladder) and the computer tells you about each one. It's fun, educational, and there's something definitely The best part is that you can

do something no scientist has ever done - put the frog back together. If you put all the organs back where they belong (and this is the best part), the frog jumps off the operating table and does a silly dance with a top hat and cane! This one is strictly for the younger set, but it's cool. For more information, write to Scholastic, 730 Broadway, New York, NY 10003

#### On the road

One of the big debates in the US is, "What can you do with a home computer?" A lot of folks think computers are only good for playing games and word processing. But there's a new program out that has a real practical use - Roadsearch Plus This is a computerized road atlas got to do is type in the city where you live and the city you for the Commodore to officially

want to go to, and the computer

will calculate the shortest possible route. Roadsearch Plus will also give

you a printout of the detailed driving instructions, how long the trip should take, and how much fuel you will use. The program contains 406 cities and 70,000 road miles. (Write to Colombia Software, Box 223SW. Columbia MD 21045).

That may not be useful to you guys, but here's an idea - why don't one of you hot-shot programmers do the same thing with the map of England? You guys like to go on trips as much as we do. I'll tell you what when you finish the program and you sell a million of them, just send

Another new program y might be interested in is Fast Load Cartridge, from Epyx. It does what it says - it will load and power up disks five times faster than the Commodore disk drive, and copy disks ten times faster. You don't have to type any extra instructions into the keyboard. Just plug FLC into the Commodore cartridge port and it works automatically, even with the copy-protected disks It's about the same price as a computer game. (Epyx, 1043 Kiel Ct., Sunnyvale, CA 94089).

A bunch of hot new games just hit the stores over here: Championship Lode Runner (sequel to Broderbund's Lode Runner), Chostbusters (Activision, based on the movie). Dragon's Lair (the home version

of the first laser arcade game). Gossip corner While we all sit around and wait introduce their new "Amiga

Lorraine" computer, rumours are flying over what final form it will take. One programmer who I trust like my brother claims the machine will sell for just \$695 including a disk drive, and that the clock to write software for it. Another equally trustworthy magazine editor insists the disk drive will be 3.5 inches (like Macintosh), but the computer will sell for \$1000

Yet another "industry insider" claims the computer is powered by three new microprocessor chips, code-named "Agnes" "Daphne" and "Portia". I also hear there is a successor to the C-64 in the works - the C-128. How do you know who to

The Plus 4 is out, as you know, and a disk drive for it is coming in January. Unfortunately, neither is compatible with the Commodore 64. It's too early to tell how the Plus/4 is doing in the US, but some people are saying that several "key employees" at Commodore don't like it. They say it's not any improvement over

A lot of these questions will be answered at the Consumer Electronics Show, which is taking place in January at Las Vegas. I understand the Commodore booth will be right next to the Atari one, and you know who owns Atari now -Jack "Business Is War" Tramiel! lack started Commodore as a typewriter

repair shop twenty-five years ago. He just started another price war, dropping the Atari 800XL to \$120. Rumor has it, Tack's about to shock the world with a new machine at the show. I'll be there, and I'll let you know what happens. Isn't this exciting?



## Opportunity Knocks.

This is your big chance – the top programmer's job. All you have to do is be at the right place at the right time.

But don't be deceived, the competition is tough out there!

bue to the complexity of its outstanding graphics and challenging game play, interview is a multi-load game using the Novaload fast load system on tape.

Don't wait for the rush, Interview is available now from your favourite software retailer or direct from us.

Tape £7.95 Disk £9.95 Inc. VAT. Commodore 64

#### To: Front Runner, K-soft distribution, 620 Western Avenue, London W3 OTU

Disk(s) of Interview Rush me Tape(s)\_ Name

Post code

Telephone.

I enclose a cheque/PO made payable to

or debit my Access/Visa\*\_ I would like to hear news of more Front Runner releases Yes
Please allow 21 days for delivery.

(post free)

П



# GO NORSE, SOUTH, EAST OR CENTURIES...



#### THE STAINLESS STEEL RAT SAVES THE WORLD

Adventure game program by SHARDS, based on the book by HARRY HARRISON

You are Slippery Jim di Griz, the Stainless Steel Rat. Your mission: to travel through time to save the world. A challenging, illustrated text adventure.

Commodore 64 (turbo load cassette)

(cassette, instructions and a copy of the book)



Python star Terry Jones's Firk the Viking. Over 200 locations a remarkable adventure game ... with graphics of a standard i have not yet seen in all adventure.

Spectrum 48K/Commodore 64 (turbo load cassette)/BBC Micro 8 £9.95 pack (cassette, instructions and extracts from the book



## THE NOMAD

Adventure game program by SHARDS, based on the book by MICHAEL MOORCOCK

A text adventure with sturning graphics as Oswald Bastable, member of the League of Temporal Adventurers, you have a chance to change the course of history in alternative time-streams.

Commodore 64 (turbo load cassette) £9.95 pack(cassette, instructions and an extract from the book)



Marketed by John Wiley & Sons Ltd. Baffins Lane, Chichester, West Sussex (Reg. No. 641132 England)
Available from all good bookshops and computer dealers or simply by using the coupon.

☐ Please debit my credit card account £
Card No Expiry date  Access/American Express/Barclaycard/Visa/Diners Clu
Telephone credit card orders – ask for FREEFONE 3477

| 0 94855 10 | 0 Commodore 64 | 195 NAME/ADDRESS |

 TOSHC NOSHC

## Hago Personal Computer Workstation.

At last you can get it all together.

Whether pou'n equenting from home, whool or office, the Heigh PCW (Ref Bill 6) and the professional details of the professional details of the professional details of the professional details of the Height PCW is the home every personal computer deserves.

See your local dealer NOW!

General computer deserves.

If unavailable order direct from Hago.

ONLY £82.75

Shelf for disc drives, tape recorder, printer etc.

nished in chocolate prown with simulated eak worktop. founted on castors or complete mobility.

203/4" to 291/4" high

eral size

The Office



Hage

Hago Products Limited, Shripney Road, Bognor Regi Please send me \_\_\_\_\_(qty) Hago (R816) workstations at £82.75 each inc. P&P I enclose my cheque for £ \_\_\_\_

or debit my Access/Visa\*Account No. Name (Bleck Capacity)
Address

West Sussex. Tel: (0243) 863131 Signature "Piezze delece as applicable

getting hooked on Micronet 800 and Compunet by Brian Grainger and Ken McMahon

If the last megagame you bought now props up the kitchen table or you've thrown your Programmer's Reference Guide at the cat, you're probably suffering from acute computer boredom. But before you exile your Commodore 64 to the cupboard along with the skateboard and pogo sticks, there may be hope. You can now connect your computer to the outside world by subscribing to either the Compunet or Micronet 800 communications network. How do you subscribe? What equipment do you need? What's on offer? Which of the two is best for you? Brian Grainger and Ken McMahon have the answers.



Compunet and Micronet - the battle is on to get 64 owners into the modem clubs

#### MICRONET AND PRESTEL

Before getting down to the nitty gritty I should perhaps introduce some of the ideas behind communication networks. We are all used to televisions, telephones and radios for feeding us audio and visual information. Some of you will also know about telex and telefax which are means of communicating the written word between business premises. In 1979 the idea transfer of information from a computer to a display terminal (your telly, to be less precise) via the phone network was launched to the public. The

#### A little bit of history . . .

The basic idea behind Prestel is that information provided by various

central computers. Users who wished to read the information would call up the computer using a keynad device connected to the computer via the phone line. The central, or host computer as it is called, would then transmit the information down the phone fine to a receiving device. usually a converted TV. Although Prestel was aimed at the home user in an attempt to set the public to use their phones more during off-peak hours it was, because of the high cost involved, only business that used Prestel. In particular the travel industry has made use of it.

In 1982 as the home computing boom got into full swing it was realis-

ed that much of the equipment to use Prestel had already been bought by the home user. The computer had a keyboard and it had a display screen or could connect to a TV. The final link in the chain was a device to connect the computer to the phone network and allow data to be sent in both directions at the rates that Prestel would accept

Prestel is set up to transmit information to the user at 1200 bits per second and receive information from the user at 75 bits per second. That device, called a modem (modulator/demodulator) operating at 1200/75 together with software to drive it, was relatively inexpensive and they soon became available for the major computers such as the Pet.

Apple and BBC micro.

The computer owner now had the means to use Prestel. All he needed was a reason. This came in 1983 when Micronet was launched. East Midland Allied Press (EMAP) decided to become an information provider to Prestel and its 'pages' would contain information of interest to the micro user. More details a little later, but in essence Micronet can be regarded as an all embracing computer club. Bacause Micronet is a Closed User Group (CUG) only Micronet members. who pay a subscription, can actually see the information on the Micronet pages and use the Micronet facilities Again like a club, Micronet has

several subsections dealing with differnt popular computer makes. A recent addition is a section devoted to Commodore 64 users. Finally, because Micronet is part of Prestel all the general information from other IPs would also be viewable by the Micronet member.

#### Logging on

So let's go into a little more detail about the services available. I shall start with Prestel, of which all Micronet members are a part. The system is designed to be very simple to operate. With modem, TV and phone connected to your computer. it's simply a matter of dialling the local Prestel computer. Some modems will even save you a lot of bother by dialling the number for you provided you have previously stored it in the modem.

When the Prestel computer answers the call it will automatically send information to your micro and Prestel host computer when it is asked for.

On successful receipt of the ID the host will then ask for a password. This is for security purposes so that you have an individual code for use

number (up to 9 digits) and in addition can hold up to 26 different screen displays called frames. You can display the 'a' frame of any Prestel page to which you may have access by keying in the page number and giv-



Starnet - brainchild of Mike Singleton, programmer of Lords of Midnight, An interactive game for 1000 simultaneous players. Has suffered from persistent bugs.

with Prestel to ensure nobody else uses your ID to run you up a hefty phone bill. Obviously the modern will not give the password automatically so you key it in from the micro's keyboard. There is a facility to change the password should you wish to improve the security still further.

Having got these preliminaries out of the way Prestel will send you an index page which, like all pages, is

ing the Prestel equivalent of the 'return' key (#), For example \*800# will display the 'a' frame of Page 800 which is the Micronet front page. To see the b, c, d, . . . z frames, if they exist, you simply press '#'

Each page also has associated with it up to ten routes to other Prestel pages which can be displayed by pressing a single key (0, 1, 2, ..., 9), These routes are set by the Information Provider and are used to guide users quickly to where they want to go. For example a page of news headlines may have routes to pages which give more detailed information on a particular news item.

#### Looking through the trees

This idea of an index page which routes to up to ten other pages (which may each in turn route to ten more and so on) is known as a tree structure and forms the basis of the Prestel information structure. While sometimes criticised by experts it is very easy to use for the beginner and unlike some networks I have tried will be mastered in no time at all.

#### Now showing on Prestel

- Now we know how to move around Prestel what information is available? The following gives a guide:
- News, Weather and Sport a number of IPs provide information on these topics. • Travel Information - train times
- and aircraft schedules. The latter much easier to understand than ABC Guides
- Travel Guides information on most towns in the UK including



MUD-the highly successful adventure game. Letters stand for Multi User Dungeons. Compulsive fun, but at £3 an hour you may end up in Mud Users Anonymous.

ask you for your individual identity number (ID). This number is only given to you when you register with Prestel. Again some modems will allow you to store this number and will automatically send it to the displayed on your TV or a monitor screen. The particular page sent will be dependent on whether you're simply a Prestel member or whether

you belong to Micronet as well. A page on Prestel has a page continued from page 21

- suitable hotels to stay at. International destinations are also itemised. · Games - a number of recreational pages appear on Prestel including a Dungeons and Dragons game.
- Teleshopping provided you have a charge card like Access. Barclaycard etc. It is possible to order all manner of items directly from your micro. This includes computer equipment, household items and books. You can even book theatre tickets at certain theatres.
- Public Information various Government bodies have pages on Prestel so that the user can get the most up to date information on services.
- Electronic Mail you can send telex's within the UK. Send letters through Prestel to any other Prestel user (Mailbox)
- Interest Groups contact services are available for many things. Want to get in touch with model railway enthusiasts? Then put out a message on Prestel and make some new friends. Want a new girlfriend/Lovfriend? Then put a message on Simpatico.
- · Discussion groups it is now possible to send messages which are very quickly displayed to all Prestel users who might be looking. In this way discussions can be carried out between users logged on at the same

#### Services on Micronet

What about the extra services for Micronet members? Micronet has been very popular. It was the first IP to have a million frame accesses by users in one month. It is not hard to see why. It caters very well for micro users who happen to be an ever increasing proportion of the UK population. The following is a summary of what is now available:

 Latest Computer News — updated daily, this service really provides hot information. If you are thinking of buying the latest whizzbang computer then somebody on the Micronet team will have tried it a few days from launch and bring back some reality to the claims of the advertisements. Can't get to the latest computer show? Never mind, Micronet will report it day by day.

 Help line — got a computer related problem? Then send it to Micronet to put up on the helpline pages. There must be somebody looking who knows the enswers

 Teach Yourself Programming — a course in learning Basic is on

Micronet. Swap Shop — got some equipment.

you no longer want? Then advertise it ● Commodore 64 Microbase — all

the latest information on your favourite machine in one easily accessible area. That's the plan anyway, information is rather thin on the ground right now.

· Clubsport - all the major use groups put information here, ICPUG has over 100 pages of information on regional groups, technical tips, news,

reviews and a cumulative index to the news letter Chatline - Micronet's very own

discussion group. · Telesoftware - perhaps the most important area. Micronet pages are used to store programs which can be transferred down the telephone line to

your disk drive. They can then be run at your leisure. Many programs are free of charge but some organisations are selling software this way as well.

#### Registering with Prestel

and Micronet If that lot has whetted your appetite to join up with Prestel or Micronet you'll want to know what to do. If you only want to join Prestel then you will need a modem, software to drive it and you will also need to register with Prestel. A number of modems are on offer from Tandata, Prism, OEL and Commodore to name but a few. Expect to pay somewhere around £100-£150 by the time you have bought the software as well. It may well be towards the high end for Pet users. For enquiring about registering with Prestel phone the operator and ask for FREEPHONE 2043.

#### What you pay

If you wish to become a Micronet member then, if you are a 64 owner. all you have to do is contact Micronet. They have a suitable modem available, including software, at £123.65 including VAT. When you register with Micronet they will automatically register you with Prestel. The address for Micronet is Micronet 800, Telemap Ltd., Durrant House, 8 Herbal Hill, London EC1R 5EJ (Tel: 01-278 3143).

After the initial modern costs you pay for the services much as you pay for your phone. The Prestel service standing charge costs £5 a guarter to home users and Micronet an additional £8 a quarter. Provided you use the service during off-peak hours (18.00 - 0800 Mon-Fri, 13.00 onwards Sat, all day Sunday) Prestel do not charge for use. Certain Prestel pages will be charged for (such as commercial software) but most of the services mentioned in this article are free. Your phone costs while accessing Prestel/Micronet will be charged as normal through British Telecom.

Micronet are particularly proud of their animate. Christmas card. Traditionally strong on news. Microne had a review of the new GL on-screen just twent, minutes after its issunch. The database contains technics. ner's Aladdat's Cave of free software. Just three ngs in the Games section but much more in the ne including useful utilities. Starner for inter-

planetary imperialists. Compuner's Jungle — the most revolutionary part of the new system. This is your bit — write news, reviews, sell onthrease or deed micros but be warmed — the law of the simple prevails. Compuner subscribers can win a monitor, Compuner's fine software area is called the Software Perk. Contains two time programs from personality programmer — Jeff Ministe. The Notice Board another





The most impressive thing about Micronet 800 is the massive amount of information available; there are literally thousands of pages of it. There is no directory structure as such, instead index pages inform the user as to what is available. Each item on the index is accompanied by a two digit number which when keyed in takes you, occasionally via a sub index, to the relevant page. There is also a facility to GOTO a page number directly.

This system of information retrieval is not quite as simple as Compunet's. For a start you have to use two hands which, unless you can write with a





#### COMPARING MICRON





command whereas Micronet seems to respond instantly. This may seem unimportant but it can save you a lot of telephone time and when you're staring at the screen waiting for something to happen five seconds

can seem like an eternity. As far as software is concerned the major difference seems to be one of approach. Whereas both systems hold some of the titles produced by the big software houses, Compunet have a much more open attitude in that literally anyone can sell anything. So, if you like the look of it, you can buy the latest megagame on offer







pen in your mouth, makes life a little difficult. Also there are a number of ocommands to remember although there are usually lentry of prompts to the property of the propert

But anything Micronet lacks in this respect it more than makes up for by the speed of it's response time. Despite the fact that both systems operate at a 1200/75 baud rate, Compunet can take anything up to five seconds to respond to a





#### RCIET AND COMPUNET





from Fred Smith in Barnsley. The drawback of course is that Fred's brainchild might not be the masterplece of software engineering you expected. That's why Micronet don't do it.

That isn't to say that you can't sells software on the Micronet 800, just shat it has to be very good. It's realily much the same as selling it to any good software house. Micronet carry cetnesive reviews of much of their software as Compunet have now started to do. Compunet also have a facility for users to vote on software they have bought.





#### COMPUNET

Compunet is not nearly as old as Micronet 800. It was officially bunched last September as an indelument last September as an indelument last september as an indetended of the september o

#### Hooking into Compunet

As with Micronet, you'll need a modern to connect your computer to the telephone system. The most convolucing choice is Commodore's own Communications Modern, for two reasons. For the price of £99.39, you get a free one-year subscription to Compute, which can be renewed at an annual cost of £30. Secondly, only the Commodore modern lat present will let you download software from the system— but more about that

The modern itself is a neat black box which plugs into the 64's cartridge port — you need no extra software or peripherals. The lead is about three metres long and plugs into a standard British Telecom jack socket. If you've got the old type fitting, a socket conversion will cost you around 6'15.

Where can you get the modern's Probably the best option at the moment is by mail order from Viccott. This means you will have to wait up to This mean's you will have to wait up to hurry you might try your local commodore dealer. Commodore is now selling moderns through dealers but it may take some time for stocks but it may take some time for stocks but it may take some time for stocks of the property of the stocks of

Once you've acquired your Commodore modern there is one more thing you must do before you can explore the hidden delights of Compunet and that is register with Compunet itself. There are two reasons why this is necessary. The first is so that they know where to send the bills — more about charges in the compunet itself is not an explored the property of the commod that is not that it is not the commod that is not the commod that is not that it is not the commod that it is not the commod that it is not that it is not the commod that it is not that it is n

Armed with modem, ID, password, and of course your Commodore 64 you are now ready to get to grips with Compunet. This is comparatively simple as it is handled by software in

the modem. After typing CONNECT the computer will prompt you with a request for a number. You have the choice of twelve telephone numbers in various parts of the country, this being the case you shouldn't have any trouble finding a reasonably local one. There's even one in Luton.

As you type the number it appears on the screen so that you can check it, hit the Return key and the modern diabs it for you. Magic! Once connected you will be required to enter your user identity and passcode, on entering this the main directory is displayed.

#### Getting around in Compunet

Information on Compunet is stored and displayed in the form of a directory system. Finding your way around is relatively simple once you know how. But to get started you need to know two things: how information is displayed on a directory, and how to give commands to the Compunet computer using the 'duckshort'.

If you refer to the photograph of the Compunet directory you can see that the title of the directory page — Welcome — is displayed at the top with the page number (1) to the left. Below this is a list of all the items in that directory, up to a maximum of the . Each directory consists of a page number, a title, and a code identifying the type of entry.

the type of entry.

T indicates that a frame of text is present. This may be accompanied as number: for example T3 means there are three frames of text. P indicates a program (PP emeans Protected Program). D indicates a directory entry without accompanying text. Occasionally T or D may be accompanied by a "4" which means there is a further sub-directory under this heading.

Great1 I hear you say. But now I know what's there how do I get to see it? This brings us to the duckshoot. Not, as you would expect, a method of mass extermination for mallards, but simply an idiot proof way of telling Compunet what you want to do. The commands are as follows:

DIR : Reveals another directory.

SHOW : Reveals a text frame.

BUY : Downloads a program.

SAVE : Saves a downloaded program.

EDITR : Accesses the editor.

HELP : For when you get stuck.
LEAVE : Disconnects you.
UCAT : Displays a catalogue of

: Displays a catalogue of your uploaded frames. ACCNT : Shows you your bill (best avoided!). UPLD

: Uploads a text frame or program.

LIFE : Used to extend life of entries. PRINT : Prints current frame.

BACK : Returns to previous directory. GOTO : Goes directly to a

numbered frame. MAIL : Accesses your electronic

mailbox. VOTE : The Compunet clapometer - allows

you to vote on software. These commands are displayed on a continuous line at the hottom of the screen and can be scrolled past a window by using the cursor keys. When the command you require appears in the window you simply

press Return and it is executed. For example, say you wanted to see the text frame associated with the directory entry 'new dimensions' at page 1000. Using the cursor keys you move the red bar down the screen until it highlights that particular entry. Again with the cursor keys, you scroll the duckshoot until the command SHOW appears in the window Pressing Return reveals that frame of text. Once you've read it, pressing any key will return you to the directory. This particular entry is suffixed by a '+' which means there is a sub-directory with that heading. To see this directory you would use the duckshoot in the same manner,

this time selecting DIR. This method has the advantage that you only need to use one hand for cursor key operation leaving the other free for making notes of page numbers and other information. All Compunet's facilities are accessed in this way, from simply exploring the database to uploading your own textframes and programs for others to see and use. You can even charge for

#### Now showing on Compunet

Now you know how to find your way around Compunet you'll immediately want to know what's on offer. The introductory pages consist of an explanation of how the system works, what's available, and how to find it. This is generally a good place

 Latest computer news — you can obtain the latest news and information about the micro industry. Some of this is provided by a character called (for reasons best known to him/herself) Tiddles The Compucat, whose big scoop at the time of writing is the inside story on The Great 24 Prestel Hack.

 Telesoftware — if news is not your cup of tea, you could try downloading some of the software that's available. At the moment only a sparse number of titles are available. In the games bracket Llamasoft. Mr Chin and Creative Sparks (Thorn EMI) all have goodies for sale, although by far the biggest supplier is (you guessed it) Commodore. A lot of the software is free, one example being an excellent

game by Jeff Minter called Syncro. Generally speaking, though, don't expect too much from the free software. The commercially available titles cost slightly less than they would in the shops. This seems only fair as the user is forking out the price of a disk or cassette instead of the manufacturer. One important point: if you download commercial software, the modern used to receive it must be plugged into the Commodore 64 or the program will not run. For more serious users utilities, business, and educational software are available. everything from a spreadsheet to a spelling tutor.

 The Jungle — you can also download software here, but basically it's an area of Compunet given over almost entirely to users. In this instance the law of The Jungle is a sort of controlled anarchy. Primarily it's a bulletin board on to which users can put anything they like, and they do. The main directory divides The Jungle into six main areas software, small ads, clubs and societies, hobby corner, user noticeboard, and jobspot. Of course there's nothing to stop you putting your small ad in the software section, but it helps if you try and maintain some semblance of order. The software here isn't always of the highest standard, but that's the price you pay for interactive freedom. The payoff is that this is one of the most interesting

and amusing parts of Compunet. MUD — no description of Compunet would be complete without a bit of MUD. MUD or Multi User Dungeons is an adventure game originally developed at Essex University by Roy Trubshaw and Richard Bartle. It has now been made available on Compunet by Century Software.

The great thing about MUD is that any number of people can play it at the same time. Hence you can be wandering through The Land minding your own business when you bump into Fred the Warrior. You can have a chat with Fred, join forces with him and help each other out. Alternatively he may kill you. The permutations are therefore endless and you have to watch out for yourself.

If you're very good and reach the level of Wizard you become all powerful and everyone has to watch out for you. The only drawback to MUD is the cost which is £3 per hour plus the phonebill while you are on-

#### What you pay

Speaking of money, use of Compunet will involve spending some. Connect time between 8am and 6pm is charged at a rate of £7 per hour. Compunet is free after 6pm and at weekends. Storage of a textframe costs 1p per day and if you sell any software Compunet will charge you 40% of the sale price for distribution. Compunet will bill you quarterly or when you run up £50 worth of debt. whichever is the sooner. I've found that using the system when it's free and exercising a certain amount of care over what you buy keeps costs reasonable.

#### Which one is best?

Now we come to the crux of the matter. Which one is best? By now I'm sure most of you will have made up your own minds and besides. nothing's ever that simple. However, for the time being at least my money is on Micronet. When it comes down to it the main purpose of these systems is to provide information and Micronet 800 has stacks of it. It is also very broad in scope. As well as Commodore 64 information and software it offers information on other computers, software and peripherals.

Compunet on the other hand is comparatively small, but it's growing. The one big thing that it has going for it is it's ease of access. In The Jungle you can set up your own bulletin board, club or society, even your own software house. Given an increase in the number of subscribers (there are under 600 at present) it's anybody's

guess where this might lead. The choice is therefore up to you. If you want lots of information now and your maximum input is unlikely to consist of no more than the odd piece of mail or a response frame then Micronet 800 is for you. If uploading your own software, articles, etc. and having a more positive input appeals you will probably get more satisfaction from Compunet.

But one last point may swing it. I have it on good authority that you can now log on to Micronet 800 using the Commodore modem and a piece of software by Viewdata available free on Compunet. You can therefore enjoy the best of both worlds for the cost of the Commodore modem, the software and the quarterly subscription to Micronet (£13).

So if having read this you still can't make your mind up, the answer is obvious. Use both. At £125 all in, it's not as horrendously expensive as you would have thought.



# A Merry Christmas Christmas Twin Pack with Christmas Card Spectrum 48K Pyjamarama Automania £11.95 Commodore 64 Pyjamarama Automania £12.95 Amstrad CPC 464 Pyjamarama Master Chess £12.95 MIXAD-DEN

SPECTACULAR FLIGHT SIMULATION OF THE WORLD'S MOST EXCITING JET FIGHTER WITH STUNNING 3D COCKPIT VIEW AND THE MOST REALISTIC 3D AIR-TO-AIR COMBAT EVER SEEN ON THE SPECTRUM!

#### SPECTRUM £7.95 **COMMODORE 64**

OTHER AMAZING FEATURES Joystick Compatible

DIGITAL

INTEGRATION

NOW On CBM 64

> £9.95 £14.95 inc. VAT & p. & p.

Definitely the best

COMMODORE 64. SPECTRUM

Watchmoor Trade Centre, Watchmoor Road, Camberley 48K VAT and p. & p. inclusive within UK Surrey GU15 3AJ

□ £14.95 □ £6.95 48K Coming TT RACER sulfill.

TOMAHAWK £7.95 48K Spectrui

The air battle where only aces survive - with enemy fighters attacking from all directions, guns thazing, explosive 3D ground attack sortles and there's will the fight home.

NIGHT GUNNER

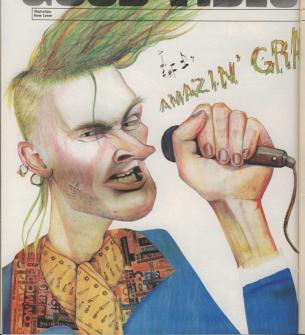
£6.95 48K Spectrum

WIZARDS OF COMPUTER GAMES heques payable to Digital Integration Ltd

Or debit my Access Account No. Access (0276) 684959
Trade and Export enquiries

Tole Sales (0276) 684959 welcome. Lifetime Guarantee

# GOOD BES



#### ADDING VIBRATO TO YOUR MUSIC

If you listen to a lot of music, whether it's pop, jazz or classical, you have almost certainly heard a singer or instrumentalist use vibrato. Vibrato warms the sound of a solo line and makes it more expressive. In fact, we sometimes say that vibrato "humanizes" the sound - just what the doctor ordered for that cold silicon fish inside the Commodore 64 that we call the SID chip.

produce vibrato, but basic- also, ally it consists of a regular This "vibrating" of the hand along with a slight variation in causes the pitch to rise and the pitch.

It's not especially difficult to fall. Or think of a jazz. The amount and speed of add vibrato on the Com-trombonist playing a ballad, the variation are quite importmodore 64, but before getting. The trombone slide is moved ant. For example, you would into the how-to aspect of back and forth on a held note, use a wider, slower, more vibrato, STEP3 a faster things we had better figure causing a similar effect, noticeable vibrato for jazz out just what vibrato is. These are both examples of than for classical music. Or, if Actually there are a pitch vibrato, although there you're an opera fan, think of change the amount of vibrato number of different ways to is some variation in loudness the opera singer who has sung

Some wind instruments, thus has nothing left but variation in pitch and/or most notably the flute, vary vibrato - he or she probably to 145, for example, you'll get loudness. Think of a violinist the wind pressure to produce won't be coming back for an a far different sound. or a guitarist: on a held note a vibrato. This produces, as encore. the player's finger rocks back you might guess, a variation and forth on the fingerboard. in the loudness of the sound,

Producina a vibrato The easiest vibrato to

too many Wagner operas and

produce on the Commodore 64 is a pitch vibrato. Type in

As you can see from the REM statements in lines 50 and 70, this program simply raises and lowers the pitch a little bit. How did I figure out how far to go each way? By experimenting, of course. The speed of the vibrato is

controlled by the STEP2 and STEP-2 statements: STEP1 would produce a slower vibrato.

If you want to, you can by changing the amount that "A" is allowed to change: if "A" goes up to 245 and down

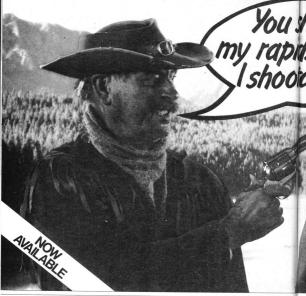
The problem with this technique is that it gets tiresome to program. If you would like an automatic pitch vibrato that works on the interrupt system so you don't have to worry about all of those FOR/NEXT loops, type in this next program:

continued on page 32

PART ONE 10 Antonio Marco (1988) Antoni NOTE AND LOOP

PART TWO

18 FORA=49152TO49341:READD:POKEA, DINCXT 18 FURN-evidatioev34::MeAdusPureh, Direct: 28 SID=54272:FORL=SIDTOSID=24:POREL, @:MEXT:PORESID=24. 20 SIGNAGAZZINGE. SEDIUSIONZALIYOREL, RIMBETIFOTEDIONZA, 15
30 POKESIONZA, IRANDORNIA PROPERTINA PR of PORESTION, PROVINCES AND PROPERTY OF THE PR 



## CLIFF HANGER

Thrill to the cartoon style action of Cliff Hanger, a really original, Wild West game. As Cliff the hero, you've got to stop the bandito shooting up the canyon. But with its own brand of wacky cartoon action fun, things simply aren't as they seem in Cliff Hanger. For a start, the boulder you throw at the ol' bandito may just come bouncing back at you.

Cliff Hanger incorporates all the elements that have made New Generation games best sellers for the Spectrum, such as original ideas, superb graphics and hilarious happenings – but now it's available first for the Commodore 64. Featuring 50 separate screens, three levels of difficulty, one or two players scoring, Hall of fame and joystick compatibility or user defined keys, Cliff Hanger is set to be THE Commodore games playing sensation. Available from any good software store for just £7.95.

Selected coles of New Generation Software

## solidate from your local computer store

## John Menzies

WHSMITH

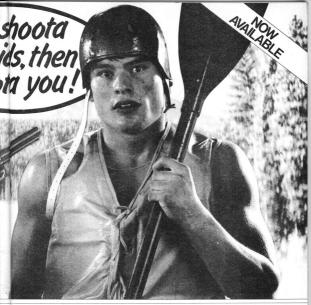
### WOOLWORTH SOEELIGUIN











## Shoot the Rapids

AUTHOR - PAUL BUNN

Ever wondered what it would be like to face the fierce white water in a top class canoeist slalom run? Well wonder no more because you can enjoy the fast action thrill of competitive canoeing from the comfort of your own armchair with Shoot the Rapids.

It's a game that involves real skill because you must move your joystick to simulate paddling action. You must get through the gates of the slalom course in the fastest time possible, while avoiding the river bank and rocks. There are also extra hazards like rogue speed boats and interfering beavers to worry about.

This multi level game features increasingly difficult river courses with superb graphics and smooth scrolling along the river.

Qualifying times have to be reached to move onto the next course.

With Hall of Fame, one or two player scoring and joystick compatibility. Shoot the Rapids is probably the best sports action simulation game devised to date. Available from any good software store for just £7.95.

SOUTH STATE OF THE SOUTHWARD GOTH New Generation products are sold according to SOUTH New Generation products are sold according to SOUTH New Generation products are sold according to their series of trade and conditions of sale

## ID VIBES FROM

lines 20-100 are there just to provide a little demonstration ication, this program will provide some rather astonishing sounds, so, if you feel

inclined, have a go at it. Using the automatic vibrato in your own music programs is quite simple. Just include line 10 and lines 500-680 (line numbers are not important but make sure that if your program includes its own READ/DATA lines that it READs the right DATA at the

right time) in your program. When you want a vibrato in voice 1, use SYS49157, and. instead of POKEing SID and SID+1 with the pitch information. POKE 253 and 254. Make sure that you POKE 254 or you will occasionally get some unexpected sounds. Then start the note by POKEing SID+4 just as you normally would. Turn the vibrato off with SYS49170. and remember that when the vibrato is off you need to go back to POKEing the pitch into SID and SID+1.

There are many ways to get a vibrato from SID. You can set voice 3 to a very low frequency, then set up a loop that POKEs SID, PEEK(S+27) (the read register for voice 3 frequency). A professional synthesizer player would say

lator or LFO.

vide the automatic vibrato; as a Low Frequency Oscil- to be avoided on a synthesizer with only three voices. The disadvantage of this Another way is to use the music. With a little modif- technique is that it uses up envelope and gating controls voice three without making to get an intensity (loudness)

MAZIN GR

vibrato, although I've never gotten one that sounded really good with this method. Maybe one of the boffing amongst you can do better.

#### Sidney Sawtooth plays on

You can, however, combine all of the voices to create one complex sound with an interesting intensity vibrato. The next program uses all three voices deliberately set a little out of tune with each other (detuning), ring modulation, and envelopes (ADSR's) set to different values to make a richer sound than any one voice could provide for this not unpopular folk melody: Notice in line 110 that the pitch of voice 2 is set a little under voice 1 and the pitch of voice 3 is set a little above voice 1. This "de-tuning along with the ring modulation in voice 3 (more about

Think of the sound waves coming out of your speaker as a series of compressions and rarefications of the air. The closer together these compressions and rarefications are the higher the pitch sounds to you

that in a later article) causes a

phenomenon called "beat-

ing" which gives the effect of

vibrato. Here's how.

If two pitches are being fed into your speaker, their compressions and rarefications will sometimes augment each other, and sometimes cancel each other out. If the two are very close to each other in pitch, they will augment each other and then cancel each other out slowly enough that you will hear the effect as an intensity vibrato

If you listen to this program. through a good hi-fi set, you will probably hear four notes in each of the last two chords. No, I didn't find a hidden fourth voice in SID, although I wish someone would. When certain intervals are tuned just right, the same acoustical phenomenon that produces the vibrato in this example will give the effect of a fourth

voice. Here's what happens. The cycle of augmented and diminished volume that produces the vibrato is itself a pattern of compression and rarefication of the air. If we speed that pattern up enough. we will hear it as a note itself instead of as a vibrato. One other thing to notice: lines 80 and 90 cause the slide effect between notes.

That's three ways to produce a vibrato on your Commodore 64 - who said SID couldn't sing?

## PART THREE

#542721F0RL#\$T08+241F0KEL\_81NEXT1F0KE5+24,311F0KE5+25,11F0KE992,65

\$=64272;FORL=STOR6-24;FORES, 4;NEXT;FORES-24,31;FORES-25,1;FORES-25,65 FORES-25,1;FORES-45,21;FORES-15,1;SFORES-16,8 FORES-61,8;FORES-12,1;SFORES-17,154;FORES-6,1;91;FORES-15,21;FORES-26,244 FORES-61,8;FORES-15,154;FORES-17,154;FORES-6,1;91;FORES-15,21;FORES-26,244

48 3-44-F0056-22, 2000 1001 50 F0050-3, 2001 1002-1, 1001-1002-1, 179-70025-4, 18-F009-1, 179-90025-4 50 F0050-10026-10036-10036-1, 1001-1002-1, 179-70025-4, 1001-1, 179-70025-4, 1001-1, 179-70025-4, 1001-1, 179-70025-4, 1001-1, 179-70025-4, 1001-1, 179-70025-4, 1001-1, 179-70025-4, 1001-1, 179-70025-4, 179-70025-Ve METT1:2-1117/2-124/momerouszerst, restination to the second se

(a) \*\* \*\*CRAST: 1.1\*\*CRAST: 8.18\*CRAST: 1.28\*CRAST: 1.

226 DATA38,238

A package of four completely different A package of lost adventures plus four character analy progra Step into the leading role in one of t most comp

	compute	r softwa	re sto

Send me (tick as required) ☐ My local stockist's address

☐ Your full list of games Scopy/ies of this game

TNEE 293 at £14.95 each

+ single P&P sum Total to send



□ Barclaycard Enter card no.

Credit card sales: UK buyers only.

Response within 21 days.

Sign below:

Creative Sparks, Department MO 296 Farnborough Road, Farnborough, Hampshire, GU14 7NF, Telephone: (0252) 518364.



SPECTRUM HANDBOOK





Author Pete Gerrard, a regular columnist for Which Micro, has put

#### Sophisticated Games for Vic 20/CBM 64

Vic/64 Cricket Realistic game of tactical skill and luck. Ball by ball
commentary with full scorecard and all the major rules of cricket cor-
rectly interpreted. Printer game save features.
Vic Cricket for Vic 20 +16K
New: 64 Cricket with extra features £6.99
League Seccer League title game for 2-24 players with automatic fix
draw etc. Printer game save features.
League Soccer for Vic 20 +16K
New: 64 League Soccer with many more features still £6.99
Whodusail 12 guests have gathered for drinks at Murder Manor, but
one of them has more than drinks on his mind. Addictive and thrilling
detective game for 1 to 6 players, with genuinely different game each
time.
Whodunnit for Vic 20 +8K or any CBM 64 (state which) £4.99
Top of the Paps Easy to learn about the music business. For up to 10 players, include printer game save features.
To players. Include printer game save features.
Top of the Pops for Vic 20 +8K £4.99
New: 64 Top of the Pops - even bigger and better \$5.99
Election Night Special Lead your own Party into the next General
Election. Agame for 1-3 players. Printer game save.
Election Night Special for Vic 20 -8K or any CBM 64 £4.99
Party 4 Four games to match the progress of your party: Master-
word, A Day at the Races, Game X (Strip Poker) and Consequences.
Harmless fun (nothing offensive) but good fun.
Vic Party 4 for Vic +3K or more
64 Party 4
NEW: Adults Only Fun game for 2-10 broadminded players. Lots of
cuddling and kissing, plus many other rewards and forefeits: you
never know what you'll end up doing, or with whom! Nothing offen-
sive, but you MUST be fairly broadminded.
Adults Only for Vic 20 +16K expansion ES 99
64 Adults Only
Disc versions available for all games – £2.00 extra.
All prices include P&P (UK only). Games sold subject to conditions
of sale which are available on request.
Please write or phone for details of our full range.

Sophisticated Games Dept CU 27 Queens Road, Keynsham, Avon BS18 2NQ Tel: 02756 3427





Computer and Video Games, Britain's most popular computer games monthly, bring you two exciting new books for the Spectrum and Commodore 64.



# How to teach your Micro a thing or two

Thousands of home computer owners have yet to discover their microcomputer's potential to help with many of the problems and decisions that come up every day in the home or office.

Perhaps you have always promised yourself that

you would teach yourself programming, but have been put off by manuals which seem to assume a lifetime spent studying computer science and mathematics. Maybe you have looked at other computer books, but have yet to find one which is free of unnecessary jargon or where the program examples bear some relevance to real life and not space invaders. Relax, your search is over.

The 'Learn BASIC' tutorials from Logic 3 are the latest development of a teaching method pioneered by Professor Andrew Colin and perfected

by testing on 3 generations of students at Strathclyde University. The 'Strathclyde Method' has been translated into 8 languages and used by over 300,000 microcomputer users.

'Learn BASIC' is a jargon free, step by step, course in computer programming, which explains everything clearly in English, not computer talk. In a matter of hours you will be writing your first

"Learn BASIC' is designed for people who want to keep abreast of the computer age, for people who realise that understanding computers is a key to future success at work, at school, and as a parent. Get 'Learn BASIC' and teach your micro how

to be useful! (Available from major branches of W.H.Smiths, Boots, Laskys, Greens, John Menzies and better computer shops nationwide.)

Please	send	me	more	information	about	
your:-				(Tick appro	priate box)	

'Learn BASIC' tutorials Logic 3 Spectrum Club Logic 3 Commodore Club (64 and VIC owners only)



	ve	

Sinclair Spectrum

Commodore 64

Acorn Electron

BBC Microcomputer

Dragon

Address

Address

(Postcode)

To Logic 3 Ltd., FREEPOST, Mountbatten House, Victoria Street, Windsor SL4 1HE

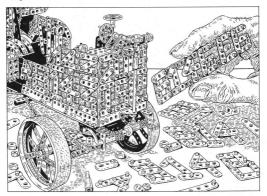


## GOING INTO ASSEMBLY

## Four 64 assemblers reviewed

by Ken Ryder and Dermot Williams

There are several ways of entering machine code into your 64. You could painstakingly hand-assemble your list of 6502/6510 mnemonics into DATA statements using a Basic loader. But you could buy a machine-code monitor or, better still, an assembler. The last two methods are recommended to avoid sleepless nights. Ken Ryder has been getting to grips with Audiogenic's machinecode monitor and Doctor Watson's Beginner's Assembly Language, whilst Dermot Williams has grappled with Interceptor's Assembler 64 and Zeus 64 from Design Design.



#### Audiogenic Monitor

Audiogenic's Monitor, at £29.95, is the most expensive package reviewed here. It is contained in a sturdy, neat, chocolate brown cartridge. It occupies 8K of address space from \$8000 to \$9FFF. so the Basic program area is reduced to 30K when the cartridge is in place.

Commands

The firmware offers 17 commands - 16 enable machine code to be entered examined and modified; the other one allows a

he connected to the user port via a suitable cable. Unlike the original TIM monitor found on Pets. which tends to be the

starting point for designers (and reviewers) of any Commodore assembler, the Audiogenic Monitor boasts an assemble command (A). Centronics parallel printer to It accepts standard 6502

mnemonics, addressing notation and hexadecimal operands. Branching is made easy by specifying the branch address instead of calculating offsets in twos-

complement.

Conversely there is a disassemble command (D) which displays the machine code in hex followed by the equivalent mnemonics and operands from a specified start address. The disassembly stops after each screenful; either the hex or mnemonics can then be overwritten and will be re-

assembled automatically. An area of memory can be filled with the same byte with the F command, useful for setting up screen colours and displays. The hunt command (H) can search an area of memory for a text

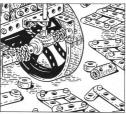
string of sequence of bytes. Any area of memory can be displayed as hex values shown in eight columns with the M command; the normal 64 screen editor can then be used to overwrite any particular value. In this way areas of memory can be filled with data for use by the main program. This data or indeed any other area of RAM can be transferred from one location in the 64 to another by using the T

useful for checking the flow of a program, and for tracing unexpected loops.

Output Machine code can be saved and loaded from tape or disk with a filename.

Unfortunately there's no Verify' command to check that the code saved is the same as that in memory. A disassembled area of memory may also be sent to the printer if required (with

the P command). In addition to the mor features there is also a (C) command to connect a Centronics parallel printer to the user port. Once the command has been executed, control can be returned to Basic; and listings, files etc., can be sent to the printer in uppercase CBM ASCII or upper/lower-case true



command, so code can be opened up as a program expands.

The usual G command is included to run machine code from a specified address at full speed. Alternatively the program can be stepped through instruction by instruction with the current position of the program counter displayed. In addition a 'Walk' command can step through so that at each instruction the contents of all the registers are displayed together with the hex and disassembled instruction. At any time the contents of the registers can be overwritten and the walk process continued. These last two 38 commands are obviously

Audiogenic's offering is a fairly standard machinecode monitor with the convenience of cartridg operation and the added bonus of a Centronics printer interface provided you have a suitable cable. But the documentation is minimal, lacking detailed examples, and a beginner will need a book to refer to Commodore's own 64 Programmers Reference

Guide should do. This monitor is aimed at the experienced user, writing relatively short code to be included in Basic programs, or to add commands to the rather limited Basic language.

nic, PO Box 88

#### Dr Watson's **Beginners** Assembly

Language The Dr Watson assembler course consists of a tape and book presented in a library book type binder. The complete package will cost you £12.95. The tape contains an assembler and a tutor in the black art of

hexadecimal. The menu-driven assembler falls somewhere between the Rolls-Royce Mikro 64 and the Audiogenic Monitor, again upying about 8K of RAM. It is not a true assembler like Mikro 64 where a source code is created and then assembled into machine code (object code). Instead it is a continuous assembler like the Audiogenic offering: it is far more flexible, though, Labels are supported and operands may be entered in hex and decimal. By default the number of labels is limited to 21; but the assembler is written in unprotected Basic, and

instructions are given to

increase the limit by altering the program. The assembler also includes the rather advanced feature of MACROs. A MACRO is a series of instructions which reoccur throughout the machine code — it is not a Monitor, the disassembled subroutine, though. It is sometimes more efficient to repeat instructions in machine code instead of calling them as a subroutine. Although this occupies more memory it can increase the program running speed. A set of instructions is identified with a MACRO

name, from then on wherever that name is used the specified set of instructions is included in the code without having to type it!

#### Commands

Programs are entered with the usual set of 6502 instructions. Unfortunately the method of indicating addressing modes does deviate slightly from normal and would have to be relearned when using any other monitor or assembler. The area of memory containing the machine code, or indeed any other part of memory, may be



listed to the screen or printer; only Commodore or equivalent printers are supported, however. The listing is impressive divided into three net columns. The first displays

the memory address in both hex and decimal, the second shows the machine code stored in that address in hex. and the third gives the equivalent disassembled code in Dr Watson Unlike the Audiogenic

code may not be edited. The only way to alter code is to overwrite it, or enter the built-in machine-code monitor. The monitor is identical to TIM (containir the commands S.L.G.R.M.X) so the contents of memory can be displayed in hex and

TIM is loaded into the SC block of memory, and remains there even if the assembler is overwritten with another Basic program Machine code created by the assembler may be re-located elsewhere, or existing code can be 'opened up' to insert

extra commands.

machine code is covered in the well-written and



paperback of some 240 pages: each member of the explained with the aid of several examples and exercises. The assembler described too, together with code without the assembler

This is where Dr Watson convert machine code into Basic DATA statements, with user-definable program line can then be tagged on to the end of a Basic program, or one can be written around being overwritten by Basic.

The 64's Kernal ROM contains many useful machine code routines which can be accessed by your own code, avoiding a lot of characters can be read from the keyboard and output to the screen very rapidly. incorporate these routines are also included in the text. memory map of the whole Kernal ROM in an appendix, together with a map of the

map of the 64.

For the more adventurous programmer floating-point manipulation using machine code is covered. This is a complex subject, but the matter-of-fact way using the Kernal's floating point routines and accumulate

maximum effect. In the same chapter the oft-forgotten or glossed-over subject of the Basic USR statement is introduced. This command is the link between programmer. Basic and machine code, parameters to be passed

from one to the other. This receives a clear explanation

Dr Watson's assembler is fo the complete povice and is suitable for the

development of short-tomedium-sized programs. The accompanying text book is excellent, written in a relaxed and friendly style and certainly very specific to the 64. Verdict? Excellent value for money.

#### Interceptor: Assembler 64

Assembler 64 costs a mere £7 - and the price shows. It comes in a small plastic cassette case just like one of Interceptor's games. That means the instructions are crammed on to the tiny inlay card. Whilst this is ideal for games, it's hardly suitable or adequate for a complicated utility such as an assembler Incidentally, it is not available on disk.

The assembler allows Basic-like source files to be entered with mnemonics and arranged in order accordingly. Apart from may contain labels. linenumber branches and

Labels may be substituted for numbers in all situations and simple addition may also be performed. Line numbers may be used in place of absolute addresses or labels as long as the line number is

receded by the letters GO'. For example, 'BNE GO100' means BNE to line 100 of the source file.

The only pseudo-operand is BYT. It is used for inserting numeric data into a program. So BYT 67,85,33 would insert these three numbers into the object code. Note that BYT, and indeed all other mnemonics, accept only decimal numbers. This will obviously slow down a practiced hex

get HEX to perform the probably means that when Assembler 64, you can neither insert hex into your work, nor get the program to convert hex into decimal numbers that it has already

Source programs may be edited much like Basic programs with lines being edited, added, deleted, inserted and listed. Listings may be directed to both the screen and a (Commodore) printer. And source files

accepted



However, Assembler 64 does provide two base-chan commands: DEC and HEX Or does it? Whilst DEC happily converts decim numbers into hex. I couldn't may be loaded and saved. with both tape and disk being supported. Once a source program is

complete, the ASSEMBLE assembly process. But it's a slow three-pass job which

assembles directly into memory. And there is no option for saving the object code

But Assembler 64 imposes a few infuriating deviations from standard 6502/6510 mnemonics: all commas in indexed addressing must be you're used to commas, it's difficult to stop them slipping in. Also, and for no apparent reason, absolute numbers must be represented by the 'equals' sign; for example, LDA = 10 or CPX = 255

Altogether, Assembler 64 is not a very pleasant program to use. The combination of unorthodox mnemonics and accepting but not converting hex does little to make the machinecode programmer's lot a happy one. Still. £7 is very cheap, but you could do a lot better.

Zeus 64 Assembler The Zeus monitor is also available at a potentially bargain price - £9.99. It comes in a more impressive video-style case and includes

an instruction booklet.

The monitor

On loading, Zeus jumps code monitor, and with nineteen commands, it's pretty powerful. There are commands, such as D (disassemble), F (fill), G (execute code) and R (registers). Then there's the not-so-usual and very useful commands like T (tabulate) and C (copy), which accomplishes the 'transfer

memory' function. gives a tabulated display of memory contents in hex, eight bytes at a time just like the normal monitor M command. In addition to the hex display, an ASCII display of memory can also bonus when you're writing 40 of text. Then there's the P

command which directs output to a printer, not just a

more sophisticated because thereby saving a lot of memory when storing source

Now to the assembler, which you open either a new or old can only re-open an old file if you can remember where address for source files is the start of user RAM.

assembler, Zeus creates Basic-like lines. But Zeus is

files - which also speeds up loading and saving to tape or disk. It also offers which works like the AUTO

command found in some extended Basics. It also has a command to renumber the

Zeus is very flexible in that expressed in decimal, hex or binary, as well as in Labels can also be used, and

ASCII directly included. symbol represents high-byte. where the X and Y registers

Pseudo-operands available sixteen-bit words, and DFC. others, make it very easy to data in program A number of useful

commands are provided for

command will change the string. As well as loading Zeus allows a second source file to be appended to the

Actually assembling a program is very speedy and takes a matter of seconds Any errors in the source code are listed along with an

I could say a lot more about Zeus 64's features which I haven't even explored to the full yet. In all, this is a very professional package which has all the little touches that make an assembler a joy to use. For just under a tenner, it is, in my opinion, a giveaway. either a good monitor or assembler. Zeus has got to be a sound choice.



# A FREE LIGHTPEN!

Yes a FREE Light Pen! with every GRAPHKIT! Graphkit is the ultimate in drawing!, designing! or painting! (using the light pen of course, which incidentally has a full 3 year warranty!) Graphkit will amongst other things allow you to:

Draw free handed on the screen anything from a Micky Mouse to your latest integrated circuit With all the fill colour and erase facilities of course!
 Save/load your latest master piece to/from the disk/fane drive.

 Or directly copy the drawing on the screen to the printer! And keep it for ever or send to a friend as a

post card!

Design your own colourful sprites and characters
Play the games in the package! or use the light pen

in your own games/education/programs

GRAPHKIT is available on disk and tape. Tape

GRAPHKII is available on disk and tape. Tape version is £1595 and disk version (recommended) is £19.95.



All you 1540/1541 disk users DMON! Is here at last. Dmon is the disk monitor you have been waiting for it will allow you to:

read/write blocks from/to the disk

· display and edit blocks on the screen

display and send disk messages/commands

• transfer your programs from tape to disk or disk to disk or even disk to tape! • and more!

DMON comes on DISK at only £9.95

Do you use tapes? As you sich and tired of vasimp for your programs to be Loaded Saved formion that tape? Then you need a TORNADO!! Tornado allows you to Savel.Cand/Verify your Basicimachine code programs faster than a CBM 1541 disk drive does! Due to popular demand! Tornado now comes with new and more powerful commands plus extra instructions to assist you in making fast versions of your existing machine code/Basic programs. Tornado is available on tape for CBM 64 and 6K +

Do your Run/Stop and Restore keys often fail? Do you want to come out of those crashes? (Or get into those unbreakable programs?) Then what are you waing for, get yourself a BREAKEN! Reset switch and let your computer know who is the boss! Breaker can be connected to your machine in copy of basic recovery software on tape. Now available for any CBM 64 or Yic 20.

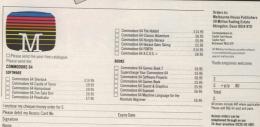


### BSF CSL, 82 FURNACE DRIVE, CRAWLEY, W SUSSEX

KH	10 bJE.
Please send meTornado at £9.95 + my free! Breaker	I enclose cheque/PO/cash to the sum of £
Please send meBreaker at £7.95	NameComputer
Please send me	Address
Please send meLightpen at £11.95	
	Tel
Please send meGraphkit at £15.95 (tape)	Please use this form and block letters only. All prices
Please send meGraphkit at £19.95 (disk)	are inclusive of p&p (mail order only, add £2 if outside UK). Please post to:
Please send meDMON at £9.95	BSF CSL, 82 FURNACE DRIVE, CRAWLEY, WEST

# HATS OFF TO MEL





CUI

Address

# **BOURNE HOUSE!**



Sherlock. Be the world's greatest sleuth. Some reviews of Sherlock Spectrum 48K.

'Amazingly detailed. No Spectrum owner will want to be without Sherlock.' MICRO ADVENTURER

'Another Winner in The Hobbit class. It's a complex real time adventure which will keep devotees puzzled for hours.'

'Sherlock is an adventure which has yet to be beaten.'

'Sherlock is a superb program and will provide many hours (hours? months more likely) of stimulating entertainment.'

"Sherlock is an excellent adventure bursting with atmosphere, challenge and inventiveness." "C CAMES "Sherlock the adventure is about as devious as Sherlock Holmes the master sleuth," POPULAR COMPUTING WEEKLY

Castle of Terror is a stunning graphics adventure game set in the 1990's when and where 'Dracula' stories abounded. Find out what your mission is by talking to the right people. But don't be fooled! Features include: Multi-word 'English Language' style input: 40 superb, high detailed full-screen graphics, animated characters, special effects and sound. Hampstead is an adventure game for would-be social climbers.

'Very funny with a joke of some description round every corner,' TIME OUT

'One of the best adventures I have played. It's a must. Super.' HOME COMPUTING WEEKLY

'An excellent example of a new type of game. It is a concept. COMPUTER TRADE WEEKLY

Zim Sala Bim. A totally new adventure experience.

'It will have you bleary-eyed at 3.00 am as your little mind

struggles to recover the treasure from the Sultan's bedroom and bring it back to your starving village. Councoorcercomment of the Sultan's bedroom and bring it back to your starving village. Councoorcercomment of the substitution of the Sultan's bedroom and bring it back to your starving village. Councoorcercomment of the substitution of the Sultan's bedroom the substitution of the Sultan's bedroom the substitution of the Sultan's bedroom the Sul

Penetrator, the most challenging arcade game has enjoyed tremendous success and now it has arrived for the

Review of Spectrum 48K Penetrator.

What really raises the game above its fellows is the revolutionary facility to completely redesign the landscape. That coupled with the practice modes at each level, makes it open of the most comprehensive arrade pames.

# TEAGHER INVADERS

### Can software really help teach your kids?

Why did you buy a Commodore 64 for your children? Are you worried that they use it mostly for playing games? If you've asked yourself these questions, you're probably the kind of person educational software producers would like to meet. The education market is growing rapidly, gradually convincing us that with appropriate software, your zapping-machine can become a valuable educational tool. Ken Young takes a broad look at ideas behind educational software and samples some of the most recent offerings for the Commodore 64.

#### by Ken Young

Practically every micro manufacturer on the market has at some time or other made the claim that their product has untold 'educational' potential. This has led to many parents buying computers with the sole intention of using them as a kind of hi-tech replacement for that old mainstay—the Encyclopaedia Britannica.

The dream of little Johnny sprouting untold amounts of new grey matter as a result of a few nights alone with the all powerful grey box has proved to be more than wishful thinking. But this is by no means a cause for despair. It is a most healthy development. In the short term the suppliers may sell less computers for 'educational' reasons; but in the long term there will be more and more educationally valid programs on the market and less and less utterly mindless 'drill and practice' type soft. ware that should have been thrown out long ago along with thermionic valves.

The Commodore 64 is in a particularly good position to benefit from the past 2-3 years of experimentation by software 3 years of experimentation market. Many program to the preferred schools computers — the BBC Micro and the RML 3BOZ — are being converted for the burgeoning home computer market where the only real chance of making a profit from educational software lies.

There's no denying that home computers are educational: they give an insight into the workings of computers at all levels; they encourage logical thought; they offer openings to an ever-widening variety of stimulating micro-worlds. But like all tools their usefulness depends on the intelligence and integrity of the user.



Mr T's Shape Games — teaches shape recognition.

The secret to getting education

value out of your computer lies in keeping your expectations to realistic levels; don't expect the computer to replace a good teacher — that won't be possible for another 20 years or so — but do expect it to be an invaluable addition to learning techniques already available.

So what kind of programs are there on the market and who are they aimed

There's around about 200 programs of an educational nature for Commodore computers though most of these were developed a year or more ago and are now looking a bit frayed at the edges. The majority of



BMX Number Jump — bike fun teaches



Car Journey — good educational software. programs are aimed at the under-12 year old age bracket mainly because programs for older kids are difficult to write and expensive to develop.

The programs to avoid are the computerised tests that make little use of graphics or sound facilities thankfully these are disappearing fast. A comparation of the comparation of the comparaprograms for early learners, are programs for early learners, are programs for early learners, are programs for early learners, as a proposition of the comparation of the comparation of the comparation of the comparation of the amount of the comparation of the comparation of the which the player races a BMX bite case with BMX number jump' in which the player races a BMX bite comparation of the strength of the comparation of the comparation of the comparation of the strength of the comparation of the comparation of the comparation of the strength of the comparation of the comparation of the comparation of the strength of the comparation of the comparation of the comparation of the strength of the comparation of the co

Perhaps the most interesting development of all, and one which has all the signs of a continued healthy growth, are the simulation



Paddington Bear is the star of a series of educational games.

programs that let the child experience a real situation and have to make a whole range of decisions to achieve success in the game.

Teachers claim these programs are extremely good for 'cognitive' development. The kids just say it's a whole lot of fun. But enough about the theory; let's load up some of the most recent offerings for the Commodore 64 and assess their suitability as educational software.

#### **LEARNING FOR TINY TOTS**

Collins Software have come up with a very attractive range of packages that

neatly supplement the best selling Paddington Bear books. The programs are reasonably priced at £7.95 and consist of a short story book, separate loading instructions and

Each program addresses particular needs of early learners such as writing skills and perceptual ability. This is done by use of a number of programs on the one cassette that neathy dovetail to provide many hours of en-

joyable learning.
Paddington And The Disappearing link is to be highly recommended. It begins with a program called Latter that is the best implementation of have very sen. The child is asked to type in his or her name and is then helped to write a letter; the computer asks for the address line by line and marry allows it into the relevant position on the screen. Ways of beginning add to the shift is use of the parameter.

Letter is complemented by Typewriter which takes the child a little further and offers the choice of writing a thankyou letter or a 'having a nice time' holiday letter. There are plenty of prompts to encourage different approaches: such as five different suggested ways of describing the weather — now there's the mark of a British software house.

Another program, Paddington's Problem Picture, begins by asking the child to help our cuddly hero match up shapes on the screen (circles, squares, diamonds etc.) It includes colourful, clear graphics and musical rewards when the child successfully manoeuvres Paddington and his trolley to the correct shape.

To help reinforce the use of the words describing different shapes the next program on the tape asks the held to guess the correct word to describe a particular shape; each exhibit on the shape; each exhibit shape; e

Further programs help the child to differentiate between colours and to sort shapes according to shape and/or colour.

The cream on the cake is the final program called Mosaics which lets the child design his or her own drawings on the screen. It's a matter of moving a 'tile' around the screen, selecting a shape, and after dipping the shape into the colour required, placing it on the colour required, placing it on excellent simulation of computer aided design and could easily have been sold as a program in its own right.

Good Housekeeping Software have adopted a similar approach with the creation of their Mr T Software. Mr T is less 'l'angible as a character but his lively T-shaped body appears giving help and assistance throughout. The range is now being expanded, with each package costing £9.95. Here's two of the latest offerings:



## SPECTRUM

#### SIMULATOR FOR THE commodore 64+

ONLY £14 - 95 I IF YOU HAVE A COMMODORE-64

MICROCOMPUTER, THIS BRILLIANT PROGRAM WILL ALLOW YOU TO USE VIRTUALLY ANY SPECTRUM BASIC PROGRAMS WITHOUT MODIFICATION I

Just think of it ! - your programs will think you really have a Spectrum | Because your 64 has a proper keyboard plus RS232, disk-handling, and serial port facilities, we are throwing in a lot of features of ZX-Interface-1 \* as well.

WHY YOU SHOULD GET A SPECTRUM SIMULATOR

- ! You can type in (virtually) all those Spectrum listings from magazines, as well as those for the 64.
- ! It's an incredibly cheap way to get all the facilities of another computer.
- ! And if you're upgrading from Spectrum to 64, your old programs don't all become obsolete.
- ! Spectrum Basic is in many ways easier and more powerful than Commodore Basic. Why not compare them for yourself?

FULL TECHNICAL DETAILS AVAILABLE FREE

FOR SPEEDY MAIL ORDER SERVICE, SEND CHEQUE/P.O. FOR £14.95 (Access/Visa accepted)

WHITBY COMPUTERS LTD

7. CHUBB HILL ROAD, WHITBY, N.YORKS. YO21 1JU Tel: 0947-604966

Unfortunately the program relies

Mr T Tells The Time consists of four different activities which encourage familiarity with clocks. The first, Matching Hours, shows a clock presented gradually on the screen. Hourly times are automatically indicated along with melodious bell chimes. Subsequently the child is asked to match the positions of the hour hands on another numberless clock. On successful completion Mr T shows his approval by showing off his breakdancing skills - definitely better than a

tick in the margin from teacher. Then there's Clock Numbers which helps the child learn to place numbers around a clock face. And O'Clock brings the activities together by asking the child to move the hands of the clock to the correct positions for different times.

Mr T's Shape Games is all about recognition of different shapes - the child has to estimate if a falling shape is going to fit into a larger pattern on the screen and press the space bar when it is in the right position. It requires great attention and good timing. Shape Maker is a little more relaxing, allowing the child to select shapes and colours and to create pictures on the screen.

All the Mr T programs are very 'user friendly' and are easy to modify for children of different abilities. They come complete with a helpful Parents Handbook with full details about each program and lots of hints and tips for setting up related activities. These programs are to be recommended but you must be prepared to be very involved in the process of using them with your kids.

Clever Cloggs (Argus Press, £6.50) is a series of six different early learning games. One of them is titled 'Party Time for age 3+'. It has its moments: it begins with an invitation to the child to be the 'Clever Cloggs' at a party. The six games involve activities such as keyboard familiarity, matching shapes, counting and sorting. The games are somewhat primitive and of limited educational appeal. To make life difficult there's no easy way back to the menu once you've started.

This program would get the big 'nono' from most teachers and has little of merit except for its low price.

Following the theme of the cuddly cousin comes Get Ready To Read With BJ Bear (Commodore £11.99). It's an extensive, ambitious package designed by specialists in the field of early learning, aiming to introduce 3-5 year-olds to the initial stages of reading.

There is a total of four programs each containing ten different 'activities'. A colourful BJ Bear Book with stories and games backs up the on-screen action as well as a Parent's and Teacher's manual consisting of full instructions and progress record



les patretch the mind etuation

quite heavily on the use of the 'Magic Voice' add-on unit which increases the cost by another £49.99. Commodore claim that the Magic Voice will be available in time for Christmas and that a range of other programs which make use of its speech capabilities will follow. Those activities that do not utilise the add-on are very useful and centre around ecognition of words, sounds and in-

dividual letters. There is very little on-screen help (whatever happened to BJ Bear?) but the package is very carefully put together and is educationally sound. Parents and teachers will appreciate the fact that the computer automatically records the child's progress and an overall summary can be viewed at a moment's notice.

#### LEARNING GAMES FOR 7-12 YEARS

In these days of the BMX bike boom and hi-tech mania, it's only natural that the games used to teach basic skills reflect the more exciting youthful oursuits - real or imaginary. BMX Number Jump (Longman £7.95) is a lot safer than the real thing with the added bonus that basic number skills are learnt before saddle soreness even gets a mention.

The object is to move the BMX rider around a set of maze-jumping hurdles as he goes. Only those hurdles which contain the solution to a maths problem can be attempted. It's certainly no stroll in the park, and life is not made easier by a less than friendly kangaroo whose sole aim is to box you soundly off your bike.

There's flexibility, in that different types of mathematical work can be selected at the beginning of the game: addition; subtraction; multiplication etc. However, the game itself is painfully slow and there's no automatic way out of a game if you fancy a change or want to hand over to someone else.

3D Hypermaths (Longman £7.95) is aimed at the child with definite Luke Skywalker inclinations. The child is placed at the controls of a rocket plummeting through the hypersphere. His aim is to keep on track by avoiding obstacles. Of course the child must solve maths problems at the same time by adjusting the flight speed accordingly.

This game is easy to learn and well designed and should prove supportive to maths work at school. My only worry is that such programs are very much aimed at capturing the imagination of the boys and has limited appeal

Word Wobbler (Longman £7.95) is a spelling game requiring considerable dexterity in avoiding word-wobbling aliens whilst collecting the letters needed to make up different words. The game has a word bank of 1500 words which are divided up into five difficulty levels. It is possible to





modify the lists by inserting your own words.

The sound effects are suitably menacing and the game easy yet fastmoving enough to be very addictive. Word wobbler will be a favourite at home and school.

Puntuation Pete (Hill MacGibbon £9.95 is surely the most endearing program around. It features Pete the Punctuater whose animated form runs around the screen helping the child with sentence construction. He boots lazy letters into capitals: slips commas into place; and gently drops full stops in at the end of sentences.

To begin with, the child must try to correct a short piece of text. Once complete, Pete walks around the text (the animation is superb) pointing out where mistakes occur. After giving three chances to correct again, Pete then runs around the screen to do the final corrections - no effort spared for the sake of correctness.

The level of difficulty can be selected - it runs from junior scribe to super scribe - and a number of different passages can be selected. Unfortunately new ones cannot be created.

Another program called Wordfinder is also included. It allows children to investigate connections between words and to search for similars. Words are presented and a mini database of related words can be scanned. This Thesaurus of words can also be dipped into whilst playing the anagram and hangman games included. It's an excellent way of illustrating how a database might be used. To complement the program the suppliers include an immaculately produced booklet with background information on the history of the written word and printing, ideas on writing a story, and games to play.

Fun To Learn (Shards, £5.95) is a pot-pourri of learning games: counting against the clock; a hangman type wordgame; an adding game; quess the word against the alien; AR codebreaking.

On paper it sounds impressive but the games are rather dull and unimaginative and are unlikely to stimulate a child's mind for very long.

Facemaker (Commodore £5.95) is a particularly imaginative program encouraging an open-ended approach to learning from parent and child.

The child is able to use the computer to build up a face based on descriptions that he feeds in. Bit by bit the face is created like a police identikit according to the descriptions

The creators have put plenty of effort into making the program as powerful as possible; you can even specify the type of hat to be worn, the length of hair, and whether or not an earring is worn. Such a program can happily be used by a child alone or a whole family group. It will take a long time before the interest in Facemaker

#### SIMULATION SOFTWARE (8 YEARS UPWARDS)

There's no doubt that simulation software gets the biggest 'thumbs-up' from teachers (some even say they get the children too motivated) and go down equally well at home

Typically a simulation program lets the child take part in a simulation of real-world events making all the necessary decisions and taking the consequences of those decisions as Mall

Special Agent (Hill MacGibbon. £9.95) involves the child in a rapidfire chase around Europe in search of a killer spy who is gradually anihilating British Agents.

The secret to the game lies in consulting on-screen timetables of flights and rail departures and moving rapidly from city to city decoding secret messages that hopefully lead to the capture of the enemy.

All the excitement of foreign travel and the unravelling of a constant stream of messages leave the child totally unaware that he or she is actually learning some very useful skills: dealing with timetables, European geography, translation.

The booklet included is an excellent addition with stories about spies, maps of Europe, and other games to play. It's well designed and attractively colourful.

Ballooning (Hill MacGibbon, £9.95) is for the more aeronautical at heart. It simulates the flight of a balloon over various terrain and teaches a simple understanding of air flight. Unlike many programs it does not expect you to develop the skills required overnight. Instead, you are given the option to practice or go on a test flight before attempting a full mission.

The screen consists of a small balloon and the outline of land, which as you take flight, scrolls from left to right across the screen. The flight of the balloon feels very realistic and needs plenty of effort to control properly - too much thrust and you're forced into the heavens, too little and you crash to the ground below only to be welcomed by a rather touching RIP

Your son or daughter won't become British Airways pilots overnight, but it's a whole lot of fun and bound to please. Incidentally, a teacher recently told me that her class had so many ideas from using this program that she had to abandon all other work for two weeke

Car Journey (Hill MacGibbon, £9.95) puts the child in the position of being the owner of a delivery service, delivering parcels and packages throughout the country. In true simulation style the child constantly has to make important decisions: what kind of car or van to buy, what contracts to take, what routes to take, what speed to travel and so on.

There are a range of screens that can be viewed at any time (this 'windowing' effect is at the forefront of much business software) showing current road position, state of the bank balance, distance and fuel progress charts. Once again the enclosed booklet is well produced and contains a range of background information and further ideas

The only failing of Car Journey is that it's too addictive. You and your child will be hooked from the word go and you're unlikely to get anything else done for a good few hours. You'll be learning a great deal in the process too. And that's probably the essence of good educational software for voungsters

# FIRST AID



# for your 64

Computers, like people, are fallible. They need the right combination of code and care to perform effectively in the business or the home. And that requires first hand knowledge from you to create a healthy operating environment for your Commodore 64.

Knowledge about machine language, about the lesser known qualities of the 64, about the disc drives, graphics, and about the tricks and tips to keep your 64 on line. That's why First Publishing has now launched in the UK a series of high quality books and software packages to provide a complete health care kit for your 64. Commodore 64 users throughout Europe have already found it a tonic. We think you will, too.

#### THE 64 SOFTWARE CENTRE 1 Princeton Street, London WC1 01-430 0954

Business accounts		1 1001	
Sales Ledger (Anagram) d		Programmers' Aids & Utilities	
Purchase Ledger (Anagram) d	75.00	Jetpack Compiler (DTL) d	39.9
Cashbook (Anagram) d	75.00 75.00	Jetpack Compiler (DTL) c	14.50
Sales Ledger (Ramton) t	75.00 14.50	Koalapad Tablet c	89.95
Purchase Ledger (Ramton) t	14.50	Cadpack 64 (Adamsoft) d	35.00
Accounts Package (Ramton) d t	95.00	BC Basic (Kuma) c	57.50
Cashbook (Microsimplex) d	172 50	Chartpak 64 (Adamsoft) d	24.95
Cashbook (Gemini) d	64.95	Chipmon (Mr Chip) t	12.50
Cashbook (Gemini) t	59.95	Forth 64 (Audiogenic) c	29.95
Final Accounts (Gemini) d	64.95	Forth 64 Advanced (Hesware) c	54.95
Final Accounts (Gemini) t	59.95	Graphics Designer (Adamsoft) d	19.95
Inventory 64 (MMS) d	29.95	Graphix 64 (Supersoft) t	11.50
Stock Control (Gemini) d	24.95	Logo (CBM) d	57.50
Stock Control (Gemini) t	19.95	Master 64 (Supersoft) d	71.30
Payroll 64 (Studio) d	34.95	Mikro Assembler (Supersoft) c	59.80
Home applications	34.33	Pilot (CBM) d	75.00
		Printlink 64 (Supersoft) t	32.20
Budgeteer (Adamsoft) t	8.95	Quickchart 64 (Adamsoft) t	6.95
Checkbook Manager (Adamsoft) d	14.95	Screen Graphics (Adamsoft) d	14.95
Home Accounts (Gemini) d	24.95	Simons Basic (CBM) c	47.50
Home Accounts (Gemini) t	19.95	Sprite Aid (Adamsoft) t	6.95
Home Office (Audiogenic) t	14.95	Stat 64 (Handic) c	29.95
Home Accounts (Fieldmaster) d	29.95	Superdisk Utility (Adamsoft) d	12.50
Magic Desk (Commodore) c	57.50	Synthy 64 (Adamsoft) d	14.95
Database systems		Turtle Graphics II (Hesware) c	54.95
Magpie 64 (Audiogenic) d	75.00	Ultrabasic 64 (Adamsoft) d	24.95
Mailpro 64 (Profile) d	79.35	Ultysynth (Quicksilva) t	14.95
Oracle 64 (B.I.) d	125.00	Victree 64 (Supersoft) c	56.35
Practifile 64 (MMS) d		64 Doctor (MMS) d	19.95
Simply File 64 (Simple) d	44.50	Music Master (Supersoft) d	19.95
Superbase 64 (Precision) d	69.00	Master Composer (Access) d	44.95
Figaro 64 (Saxon) d	89.95 86.25	moster demposer (Access) d	44.95
Database (Gemini) d			
Database (Gemini) c	24.95	Word Processors	
	19.95	Heswriter (Hesware) c	39.95
Spreadsheets		Paperclip 64 (B.I.) d	98.90
Busicalc (Supersoft) d.t	17.95	Simply Write 64 (Simple) d	46.00
Busicalc III (Supersoft) d	81.65	Simply Write 64 (Simple) t	40.25
Calcresult Adv. (Handic) d	99.00	Vizawrite 64 (Viza) d	79.95
asy Calcresult (Handic) d	49.95	Vizawrite 64 (Viza) c	89.95
Multiplan 64 (Hesware) d	99.95	Vizaspell 64 (Viza) d	59.95
Practicalc 64 (MMS) d	44.50	Educational & Languages	33.33
Practicalc 64 (MMS) t	39.95	Essential Italian (Dell) d	
	39.95	Essential Italian (Dell) d Essential Italian (Dell) t	16.95 14.95
		Besieged (Sulis) t	
And the second second		Wordpower (Sulis) t	9.95
d=disk t=tape c=cartridge		Time Traveller (Sulis) t	9.95
ALL IN STOCK NOW - Callers welcome		Just a Mot (Sulis) t	9.95
(10am – 6pm incl Saturdays)		various subjects: Callisto, Collins, Commodore t	9.95
Mail Order: Cheque or PO – add £3 for items over £30, others fre Credit cards (Access/Visa): phone or write. Immediate despatch.	re.	various subjects: Callisto, Collins, Commodore t	
		War simulations	
The 64 Software Centre,		Eagles (SS) d	34.95
1 Princeton Street, London WC1	- 11	Tigers in the Snow (SS) d	34.95
Please supply the following items:	- 11	Geopolitique (SS) d	39.95
1	- 11		
uty (# £	II	Flight simulators	
2 Qty @£	II	Flight Path 737 (Anirog) t	7.95
3 Qty @£		Interdictor Pilot (Supersoft) d	19.95
4 Oty (if £	[1]	Interdictor Pilot (Supersoft) c	17.95
TOTAL £	- 11	Flight Simulator (IFR) d,t	24.50
		Flight Simulator II (Sublogic) d	47.50
POSTAGE £	11	Solo Flight (US Gold) d.t	14.95
TOTAL £		Heathrow (HC) t	7.95
Name Address		Business Simulations	
Visa/Access Card No		Commodities (Rlue Chip) d	F0.0-
	- 11	Baron (Blue Chip) d	50.00

Baron (Blue Chip) d

A large assortment on disk, cassette and cartridge

50.00



#### W MUCH DOES OXFORD PASCAL COST?

# REAL ARCADE ACTION! ROM JETSOFT





When you've got bored with your tea chest full of shoot 'em ups or your latest mega-screen adventure, you might cast a longing eve over those old favourite board games like Monopoly, Scrabble, Othello, draughts and Chess, Remember them? If you're a board game nut, you'll be pleased to hear that all these hardy perennials can now be played with the Commodore 64. Jennifer Goldsmith has looked at what's available, some commercially, some for free.

#### Scrabble

Scrabble is such a popular word game, it needs no introduction Now, a computer version for the Commodore 64 from Leisure Genius is available at £12.95. Whether you buy the tape or disk version, Computer Scrabble comes attractively presented in a your opponent pleasantly illustrated box with a 16 page manual.

#### Getting started

When loaded, Computer Scrabble displays a miniature yet otherwise identical version of the original board. Computer Scrabble then asks a few questions like the names of the players and whether you want the computer to play. Then you are ready to do

Like the original, a maximum of four players can take part whether all humans, all compu or a mixture of both. All the rules of the game are incorporated in Computer Scrabble and they are explained in the manual. When it is your turn you can

select one of the nine options displayed on the screen These are quit, pass, premium, values, tiles, change, juggle, hint and swap. Quit allows you to leave the current game and asks you if you would like to play again. Pass allows you to miss your

turn which you would do only if you could not make a word and there were no tiles left to do a swap. Premium tells you the value of the different coloured squares on the board whereas Values shows you the numerical value of the different letters of the alphabet.

Tiles indicates how many Ds (for example) there are left, the total number of tiles remaining is indicated under the player's scores. Change lets you change certain tiles in you rack but tuggle alters the order of the tiles in your rack. Hint helps you if you cannot think of a word and Swap lets you swap racks with

So in fact you have more features available to you than if you are playing the original game. One point, though, if you don't want your opponents to see the letters you're working with they'll have to turn a blind eve whilst you inspect your set.

#### Conclusion

Computer Scrabble can produce hours of fun whether for one person playing against the computer or a family evening's entertainment. And at least the dog cannot walk across the board and upset the tiles! One reservation, though: the tape version of Scrabble takes about fifteen minutes to load. You could have almost played a game in that time.

#### Colossus

Colossus from CDS Microsystems, is one of a number of chess programs for the Commodore 64 but claims to be the best, aiming to meet the demands of keen chess players whether they're beginners or geniuses playing blindfold. The program comes on tape (£9.95) and disk (£12.95) both of which are attractively presented in a

# A review of Commodore

video-style case with a sixteenpage pocket-sized manual.

#### Getting started

Loading Colossus takes about two minutes from disk, and about four times as long from tape. By that time, you could be well into a conventional game. Still, the board is cleanly displayed with excellent graphics for the pieces: conventional algebraic notation is displayed around the border. The move which Colossus is considering is indicated to the right of the board. You can change the colour of the white squares and the border to suit your preferences. By pressing the space bar a

second screen appears showing the elapsed times for white and black the seven last moves the number of plys (half-moves) ahead Colossus is thinking. number of positions examined the best line of play found so far and the score. The latter is divided into material and

The score which relates to material is fairly simple to comprehend. For example, a pawn down is represented by 1. However, the score which relates to position is not calculated in decimal or 'pawns' and a large plus figure should mean that you have a large positional advantage and so on But I don't think this is always the case: when you mate your opponent the score gives you a large material advantage, (62) and a minus figure for position!

Playing the game

To enter moves you can either



MAYFAIR € 400

MAYFAIR

SUPER TAX PAY £100

2350 DARK LANE

PARK LANE

€ 350

CHANCE



# dice

#### board games for your 64 ---- by Jennifer Goldsmith

use the cursor or the algebraic notation, providing you remember to SHIFT the letters. Both methods are clearly explained in the manual. If the ove involves promoting a pawn. Colossus will ask 'Promotion piece?'. Colossus is familiar with the 3-fold rule, 50-move rule and Stalemate as well as with Checkmate.

The level of difficulty at which Colossus will play is determined by the time allowed per move or per game. The First mode lets you play 'Tournament style'. That means X moves have to be played in time Y followed by a secondary parameter of A moves in time B. The Average Mode asks the time per move. This can be anything from one second a move to 59 mins 59 seconds a move. So it's useful in lightning chess (ten seconds a move) and for analysis.

Mode three needs the time for the total game, useful for playing five-minute chess. Mode four makes Colossus play at the same rate as you. Then there is the infinite mode which means Colossus will continue to look until you interrupt it, it finds a mate, or it has searched ahead.

Lastly there is the problem mode which has two subdivisions. One sub-division will find normal mates in up to seven moves whereas sub-division two will find self-mates which is a major advance as many good chess computers do not provide this facility! There is no facility for help-mates (ie you help your opponent to mate you). This may sound strange but help-mates do occur in problems as do selfmates

Special features

one could get a hardcopy of the moves of the game. The 'Alter position' command will let you set up a particular position easily and if you make a mistake the original position can be recovered by pressing the 'G'

During the course of a game you can step backwards and forwards, so you can check mistakes and even renlay the game. Colossus can also play against itself and you can replay the whole of any game at the speed you want. You can even set the elapsed times for each side and if you want to play a friend then Colossus will supervise to make sure you don't cheat. This is also useful if you want to run through the moves to

get to a certain position. Finally you can play 'blindfold' chess by making the board go invisible. Naturally, you can save the game to tape or disk, not just from the stage you have reached but all the moves from the start to the current move (max 120) But there is a problem here: only one game per disk can be stored as Colossus always allocates the same name for the file. If this could be ammended so the user allocates the file name this facility would be perfect. The minor snag is that when you save the position you do not save the line of best play, which would be useful especially when you have hours. It would also be nice if

#### Conclusion

Colossus is a well designed program including many features plus comprehensive opening theory not seen on other home micros and it mu be the best chess program available for the Commode 64 and at £9.95 on tape and £12.95 on disk, every keer chess player should have a copy. It is simple to use yet more fun than a board as you can learn so much more and, of course, you can play games whenever you want



	TRAFALGAR FLEET STREET SQUARE \$240	FLEET STREET \$220
	TRAFALGAR SQUARE \$240	TRAFALGAR SQUARE £240
EENCHIDCH CT	STATION F.200	FENCHURCH ST STATION £ 200
	LEICESTER SQUARE £260	LEICESTER SQUARE £260
	STREET £260	COVENTE STREET £260



WATER WORKS	WATER
-------------	-------

	£280	£280
×	0	5333

4 8		£ 280
PICCAD		£ 280
۵		
	<b>100.00000</b>	EUR PEREN





00 53









0	M	м	U	ИI	y
	C	HE	SI	1	



STRE		8	
£300	•		



REGENT

9,300



#### Draughts

This hardy perennial game has been written for the Commodore Superior Software for £7.95

On loading the program, a which rules' caption is displayed. After selecting your rules such as must take all the screen displays various options. When you have finished with the ns the board is displayed. annotated like a chess board. Elapsed time for each side and how the computer is thinking is displayed as well, on the right of the screen

#### Playing the game

Like chess, you can set the level of play and the games can be saved, loaded and replayed. The colours of the various parts of the screen can be altered and the moves can be input either with the cursor or through algebraic notation. Sound is used at appropriate times, for example, when the computer moves pieces or when you make an illegal

#### Conclusion

Draughts is a well-written program that provides more facilities than the original board game. But, like all computerised versions, you don't get that feel of satisfaction when you've jumped over a whole row of your opponent's pieces

#### Kensington

Kensington is available for the Commodore 64 both on disk and tane from Leisure Genius at £12.95. Whichever you buy, the game comes attractively presented in a boy with a 16 page manual. The object of the all six points of a white hexagon with your own colour stones. On loading, Kensingto

displays a pattern of adjoining triangles, squares and hexagons Colour is used but you cannot change them because they form part of the program like

#### In play

Only two players can participate whether both human, both computer or one of each. You are requested to place your stone on the board, which you do using the cursor controls illustrated in the manual. The first player to form a hexagon wins. During play if you form a triangle you can move one of your opponent's stones and if you form a square you can move two of your opponent's stones.

#### Conclusion

It is quite an entertaining enjoyable game at the beginning but now I can beat the computer on top level and I have not played more than half-a-dozen times! However against an opponent the game

anything up to 5 hours · Also available from Lei

Genius are two more old classics: Mastermind and Cluedo PUBLIC DOMAIN

#### SOFTWARE Othello

Othello, like Chess, is a game to take a minute to learn yet capture your opponent's pieces by trapping them between yours. Othello comes on disk and most probably also on tape. And you can get it from the library of user-mouns - providing you are a member. Two versions are available, human versus computer and human versus

#### Load and run

The board is like a chess board but with the numbers 1 to 8 arranged horizontally instead of vertically and the letters A to H vertical instead of horizontal Moves are made silently, in fact sound is not used at all - even if you make an illegal move! Screen colours cannot be

changed either The computer selects who shall move first. When it's your turn to play you show the computer where you want to place your piece by entering the cell reference, for example, d3. e6. If when it is your turn to move and you are unable to canning at least one of your opponent's pieces then you press 0. If you try and make an illegal move the computer lets you

When there are no more cells to fill or neither player can make a capture, the game ends and the computer states the winner and the score for each player. No

#### running score is shown. Monopoly

Monopoly has been adapted for the Pet and Commodore 64 under the name Monopole. Like Othello it is public domain software but the English version is only available to members of the user group ICPUG. Monopole is available on both tape and disk. A manual is not needed as the game is self-explanatory for those unfamiliar with the original board game.

#### Do not pass go

On loading Monopole and after a brief introduction the board is displayed. It is identical to the original board in colour and design, the sole difference is that the property names are not visible. You might think that's a problem. Not really, because when you land on a property the property name is immediately displayed on the screen and deed details and other information are available on separate screens

To roll the die, you simply press R. If you want any information or you wish to carry out a transaction, such as mortgage properties you press T and various options will be displayed. You then select the option you require and the screen will then display the required information. You can then select another option or return to the game

If the property belongs to another player Monopole automatically transfers the rent due and alters the balances so there is no squabbling.

Property development

Sound effects like the sirens when you go to jail are a big advantage over the board game However, only two players can nlay which means that it is no longer a family game. Also when building on properties you have to distribute the houses as evenly as possible rather than deciding to have four houses on one property and one on each of the other two, for example.

#### Conclusion

The original adaption of this game was done for the Pet but the version for the 64 has the advantage of colour and sound It is still an exciting game which will keep you amu

for hours and as it is available free of charge what more can be said for it? The programmers have done a very good job.

#### Mastermind

There are two versions of this game; one using colours and one using numbers. I will deal with the version using colours first. This has been written for the 64 under the name Master Guess and like Monopoly, is public domain software. As the instructions are simple and are displayed on the screen there is

The object of the game is to ork out the secret code which the computer has generated. A white peg indicates that you have guessed the right colour but the wrong location and a black peg indicates that you have both the right colour and the correct location.

The colours are represented by letters for example R for red. Y for yellow, which seems a nity as colour graphics could have been used. You have a maximum of ten attempts at guessing the code and of course you cannot cheat by peeping like you can with the original board game. When you have made ter attempts or have beaten the code the master code appears.

#### Conclusion

This is a good imitation of the original but it is a pity that the colour, graphic and sound facilities of the Commodore 64 have not been exploited to the full. But for free, who can complain? The version using numbers has been written by Commodore Educational Software and is similar to the 'colour' version but this version has even less colour than the former and again, there is no bound



# MITTOT COMMODORE

# SOFTWARE 1030

VIC 20 ATARI ORIC TITLE Publisher Computer Ghostbusters CBM64 CBM64 Daley Thompson's Decathlon Ocean CBM64 Beach-head CBM64 Chiller Mastertronic CRM64 Select One Suicide Express Wanted Monty Mole Gremlin Graphics CBM64 \* International Socces Commodore CBM64 Zaxxon Bruce Lee US Gold/Access CBM64 CBM64 Solo Flight Summer Games CBM64 CBM64 Eureka Domark BMX Racers CBM64 CBM64 Blue Max Jet Set Willy Software Projects CRMSA \* Bionic Granny Mastertronic СВМ64 CBM64 \* \* Lazy Jane Tornado Low Level Termian CBM64 Danger Mouse in Double Trouble CBM64 \* Hunchback CBM64 CBM64 \* Manic Miner Cascade Cascade CBM64 CBM64 Zaxxon Zeta 7 Mogul CRM64 Scrabble Leisure Games CRM64 CBM64 Vegas Jackpot CBM64 \* Football Manager Addictive Games

#### Top 20 Games for the 64

Alligata

ı		Top 20 G	an
1	TITLE	Publisher Comp	uter
ī	Ghostbusters	Activision	C84
2	Daley Thompson's Decathlon	Ocean	C84
3	Beach-Head	Access/US Gold	C84
4	Chiller	Mastertronic	O84
5	Select One	Computer Records	C84
6	Suicide Express	Gremlin Graphics	C84
7	Wanted Monty Mole	Gremlin Graphics	C64
8	International Soccer	Commodore	C84
	Zaxxon	Access/US Gold	C64
0	Bruce Lee	Access/US Gold	C64

Flight Path 737

đ	or the 64		Sec.
	TITLE	Publisher Com	puter
	Solo Flight	Access/US Gold	C64
	Summer Games	Quicksilva	C64
	Eureka	Domark	C84
	BMX Racers	Mastertronic	C84
	Blue Max	Access/US Gold	C84
	Jet Set Willy	Software Projects	O84
	Bionic Granny	Mastertronic	C64
	Tornado Low Level	Vortex	C64
	Lazy Jane	Termian	C64
	Danger Monse in D'hle Tr'hle	Creative Sparks	C64

CBM64



# STELLAR/

## **FEATURING SUPERB 'BATTLEZONE' ACTION!**

Warf Gir Draxon, Supreme Overford of the Arcturan Empire, has declared war on the Terran Empire has declared war on the Terran Empire from 18 the Arctural Arctural Arctural Health and the Arctural Arctural Arctural Health and the Arctural Arctural Health and the Arctural Arctural Health and the Arctural Health and th

an entire ground assault force to Titan, Satum's largest satellite, as the product to a massive invasion of the state of the product to a massive invasion of the the RAYEN, see depremental more more many largest the RAYEN, see depremental more depremental than the RAYEN, see the product with anti-gray pods, an inviso-cloak, and heavy weaponry. You must plat the crott through the seven Warplinks from Arcturus to Titan, destroying the guardposts on the way, in order fo clear a path for the return of Earth's forces. A suicide mission? Or Earth's only hope?



Dealers For Information on how to become a U.S. Gold Stocklst write to:

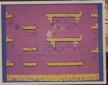
Centre-Soft, Unit 10, The Parkway Industrial Centre,

Heneage Street, Birmingham B7 41Y. Telephone: 021.359 3020, Telex: 337268.

# in the LOST KINGDOM

The artifact is just too templings.
Sure, no one has ever returned
with it but they didn't have your
brains and course, any risk,
has artifact containing the total
history and knowledge of a lost,
fongotten crivilization! Just think
with that could do for your career,
for the university museum, and for
your bank halames et small matter
of miding lit. The pertise on unde are
sare to be the most fendishly elever traps and puzzles you've
ever faced. You'll fine call you wish
halamed halamed halamed halamed with the
halamed halamed





Distributed in the U.K. by U.S. Gold Limited, Unit 10, The Parkway Industrial Centre, Heneage Street, Birmingham B7 4LY. Telephone: 021-359 3020. m

## SCREEN SCENE



**Rocket Roger** Commodore 64 Alligata Price £7.95



joystick can't be used simply because accuracy of upward thrust with lateral movement whilst pumping out laser bursts. Thirty four-way scrolling screens to immerse yourself in, though you must be prepared to accept a

Perfecting keyboard control will keep you quiet for some time, then there are the mysteries of the planet itself. Really

a practice mode, just to come to grips with jet-pack flight (and free fall!) is called for. Meteors are no respectors of your sensibilities and quickly eat up lives. To collect the 99 crystals demanded will require all your skill, quite

Above ground all the nasties are zappable; down in the hurdle-hoppers invulnerable, what's more in some zones a multitude of mortal meanies insist in warping in to plague you almost



Di's Bahy Commodore 64 **Bad Taste** Price £6.95

scanfation: BEE Skill level: ### Value for money: BEE

This one comes straight from the heart of the gutter (press). It's a five part piece of arcade parbage that sails so close to the wind that it's author may well find

mself on a one-way tour to the Tower. The destiny of the nation is in your hands. You must help the Royal Couple do what comes naturally whilst listening to suitably regal procreation music

(no, it's not 'Careless Whisper'.) placed by potties, and the mother ship

by a nappy. The potty bombs bring a whole new dimsension to the idea of SPLAT! Though it adds weight to the arguement that royals are just like you

potty bombs (number two screen, you might say) with toilet rolls bring you to the next stage. This is where it starts getting a little naughty. You must lead



Eddie Kidd's Jump Challenge Commodore 64 Digital Price n/a

> Skill level: BBBC: Interest: ###

Bruce Lee Commodore 64 US Gold

> Skill level: BBBCC Interest: BBBC eformoney: sess;

At the last count we had Rolf Harris, Tony Hart, Lee Majors, the Stranglers Thompson Twins, Shakin Stevens, the entire crew from Dallas and Roland Rat. So it comes as no surprise that stunt

bike rider - Eddie Kidd should want to Eddie Kidd leap over several cars you jump on the bandwagon Eddie was at the Personal Computer World show in September in all his gear, signing autographs, and assuring all and sundry that he was really "into computer games.

The fact that Eddie was brought in fi Yet another celebrity lending his name to computer games - in this case the

late Bruce Lee - the most famous exponent of the Martial Arts of all time. his mission, a small matter of discov-

The man who holds this secret lives high up on the summit of Mount Fuji in

Determined to stop Lee from seeking an audience with the wizard are the Ninia and the particularly nasty giant

game is an excellent one with some really impressive graphics.

The idea of the game is to successfully jump as far as possible and main tain control of the bike on landing

Refore you can attempt the classic must first clear a row of oil barrels. The bike and the rider are controlled separately so that the computer is act-

ing as the motor bike and you are actually riding it. The function keys provide the gea

ntrols - F1, first, F3 second, F5 third,

green Yamo.

Bruce will need all of his agility, kicks and punches to defeat these foes. The toughest of his opponents are the Ninia who can dodge and kick back. The giant green Yamo can be taken out with three

Both the Yamo and the Ninja track you throughout the twenty screens of

To move from one-level to the next you must first collect all the hanging lanterns in that level.



Commodore 64

Price £6.95

Price n/a



Drelbs is that rare thing these days - a on the orid different computer game. Play commences in a maze at the

centre of the Drelbs Kingdom. The maze is made up of swing-gates that change their position as you move through

The object of the game is to make as many complete squares as possible by closing the gates on the three-sided squares. Once a square has been 'closed' it will begin to pulsate. You

Out to stop you are the Trollaboars

who can also flip gates. The Trollaboars are the evil destroyers who are out to wreck your square building programme. Your only defence against the evil T's is to trap them temporarily in completed squares.

Once all your squares are complete some of them will turn into Drelbish windows - you can hop through these

You are now in the land of the Gorgo

willy-nilly. Security lasers, slides and conveyor belts will provide headaches, especially as the Zone Master is ready

to snatch a life for slow progress. In a nut shell, Rocket Roger is an imaginative, obstacle strewn quest for treasure with a complement of intergallactic intruders likely to provide hours of engrossing entertainment. But only after you have perfected the delicacy of touch to exploit the rocket-pack fully. I'd be content to explore the whole play

Rocket Roger is further proof that here is plenty of programming talent left at Sheffield-based Alligata, despite the departure of one Tony Crowther

Even if Tony's leaving has not had to serious an effect on the fortunes of Alligata it has made them slightly paranoid about talking to computer mags. One Alligata programmer appar ently got the idea of branching out on his own as a result of the magazine in

area, let alone "win" Di for the next nine months.

safely over the obstac

order to balance his bike.

She must fulfill her engagements, by

hounds (the game might yet go down well at Buck House). Finally it's time for that mad dash to the hospital via a scrolling maze with all obstacles. Finally our heroine is forced to negotiate a ladder complex evading a syringe and catching the baby as it's dropped by a flight to use the NHS.)

Yes, it's really this mucky ... WE ARE causes the bike to swerve to one side at that your speed is not sufficient to clear

NOT AMUSED, and neither it seems are those concerned - all we could get from Buck House was a terse 'no comment' This game is for bad taste enthusiasts everywhere. Lovalists will hate it, Willie Hamilton supporters will love it. The royals have so far evaded the at-

tention of software houses - about the only part of the publishing world that has so far not tried to capitalise on rovalty. It can surely only be a matter of time though, before we will be made to cringe at Royal adventure games.

out of control as breaks squeal and you

low speed or can be used to abort a iumo at the last moment if you judge can hear metal hitting metal Apart from the jumps it is also possi ble to attempt other stunts - such as wheelies. To do a wheelie you simply

The key to success in the jump game is to judge the speed accurately to get build up speed and pull back on the ovstick to make Eddie pull the handle Eddie can be made to stand lean for-Although the graphics are tremend-

ward, crouch down, or lean back in ous I'm not sure there is enough of a sting challenge to this game. That The most exciting part of the game is when you take off and sail through the slight worry aside it is still bound to be a great hit with Eddie Kidd fans air watching those cars cruise past be-

As well as punching and kicking the earns 400. Every time you enter a new enemy Bruce can also be made to leap room you get two thousand points

One great strength of this game is the The largest bonus of all is awarded for killing the wizard - a massive 300 play against the computer, or an oppopoints. An extra Bruce is awarded when nent, or two of you can team up to take you reach 40,000 points and for every

on the computer subsequent thirty thousand points after Points are awarded for various chievements. Kicking the Ninia earns Bruce Lee was the first of US Gold's 75 points, a kick is worth 100, taking a really big hits when it was launched on

lantern earns 125, knocking out a Ninja the Atari earlier this year. Now 64 own is worth 200, and knocking out a Yamo ers can get in on the action

lytes who have enslaved the Dreibs. It is down to you to free them - by making contact with as many Drelbs as possible. The Gorgolytes attempt to push you back onto the Drelbish maze.

can then get onto the bonus screen. The points you earn here will go towards freeing all the Drelbs still held captive.

There is one other way to get onto the onus screen - by kissing the Mystery Lady. Her beautiful, but sad face will appear in one of the Gorgolyte squares for an instant. If you are successful in steal ing your kiss you will jump to the bonus screen. Only when all the Dreibs have been freed will you discover the secret of the Mystery Lady.

Once you have been to the bonus screen the round starts again. There are eight different rounds altogether: Saphire, Ruby, Emerald, Topaz, Peridot, Anate and Amethyst

Fun to play and commendably diffe

#### SCREEN STAR •



Fighter Pilot

Price £9.95 cass £14.95 disk



from US Gold - sounds like it should be a British game - has none of the sophis ticated controls of the Digital game and none of the play options that make FI In the battle for supremacy in the gan

nes easy to get into but difficult to master market the British hits have been few There are no less than sixteen diffe ent commands that it is possible to exe American importers with games like cute - giving some of the real complex

complexity and game-play. Spitfire Ao

Beach-Head, Bruce Lee and Boulder- ity of flying a jet fighter dash have been cleaning up in recent Fighter Pilot's programmer, Daw So it's nice to see one British com-flight game - having worked for several pany beating the various Yanksoft offer- years on computer systems for the ings in the dog-fight to produce the best Royal Air Force.

The flying training option position The company is Digital Integration your aircraft at the threshold of the run and the game is Fighter Pilot - now way base facing due North. Take off is available for the 64 after its Spectrum slightly easier in this mode than in some version topped the games charts for of the later stages.

weeks earlier this year The main enibyment of Fighter Pilo The game features all the superior comes when you have mastered the sound and graphics that we have come controls and become a competent pilot to expect from Spectrum to 64 conver- You can now take the USAF F15 Eagle

Flight controls and game play options great strength over traditional fligh are many and varied. You can practice simulations

landing - one of the tricklest man- In this option you are scrambled and oeuvres that any pilot has to cope with. given a mission to defend four airfields Also you can attempt blind landing Your air computer and radar tell you which simulates landing in the fog. If the position of the enemy aircraft and his does not sound difficult enough for you set an intercept course. The docyou, you can also add extra hazards like fight is on at less than a mile distance and 5000 feet altitude. Combat only

To activate your guns, press the takes place at this altitude. To turn an space bar - although you can only use run - which will sometimes be neces hese in combat mode. As with all the sary when you have sustained to other modes in the game Combat mode much damage - simply dive below the has a training mode as well. 5000 feet level or distance yourself at Training mode puts the enemy at a more than a mile from the en

disgustingly unfair disadvantage - you If you sustain four direct hits you are can fire at them but they cannot fire finished. All hits are registered by a back. If you just like blasting things then change in colour on your radar. If you you can have great fun with the training do find it necessaary to turn and run to mode - watching the enemy drift into get repairs the enemy will lock on to his your sights and then pick them off like original target and set out to destroy

lying elephants. Your ground installations.

None of the other flight games I For my money Fighter Pilot is the bested came close to Fighter Pilot for flight gamenowavailable for the 64.

## **SCREEN SCENE**

#### Orpheus in the Underworld Commodore 64 Sterling Price £6.95

and a Hellenic Hero. "Can-Can" is the the surface. dominant tune, as you would of course Skills required are accurate wellexpect from the title, but two other jing- timed leaping with hopping and duckes provide some variation.

Skill level: \*\*\*\*\* Interest: \*\*\*

This is Pitfall but with Egyptian decor nean screen is the equivalent of two on

ing, equally essential adeptness at The 120 screens are littered with vari-rope-swinging doesn't go amiss either. ous combinations of hazards garnered. By taking advantage of the CHEAT keys from the following: pits, boulders (roll- it is possible to scroll your way through ing or stationary), floor traps, white all the screens without losing a life, adbirds, poisonous green plants, moving mining the hieroglyphics and motifs as saws and the essential magic vanishing you grab the point-giving goodies. A holes. Below ground there is a continu- good, colourful version of a well deous barrage of fireballs. Each subterra-fined game.



#### Stock Car Commodore 64 Micro Power Price f6 95

Value for money:

Presentation: \*\*\*\* Interest: \*\*\*\* Value for money:

that perennial filler for "Volcanic, Type-gear it-Yourself, Bugridden Games for your

about for less traction, but added fun-There are four cars on the track with the time. the 64 controlling 2 or 3 (depending on how many mere humans are playingl:

An uprated, sophisticated example of all you have to do is steer and change

Having blustered your way to vict 64" books, Crash, bash, steer, skid and with "Congratulations" still ringing in accelerate your way round 6 different your ears, it's time to enter the Hall of tracks having selected the skid factor, Fame spelling your name with the aid of overall speed and number of laps be- another car. Rollicking fun for those of Scalextric getting bent and buckled all



#### Chartbuster Commodore 64 Alligata Price £9.95

Presentation: Skill level: \*\*\*\* Interest: Value for money:

indulgence. Collect all the keys and and change colour. open the safes on each and every frame. Eagle Empire sends flocks of Killer Watt has you flying a saucer phoenixes and waves of eagles to do around a cavern popping light bulbs, battle with your space ship before you avoiding walls and zapping dolphins get to kapow the emperor in his egg-for-

good game Panic Planet is a straightforward ver- you

Devastatingly good value; comprising sion of the arcade classic. Dig holes and five games on one tape (and they all bash the red monsters when they fall in loaded!) Blagger is a 30 screen Platform. Take too long about it and they leap out

which leap up from scattered pools, tress; harmless fun for zappers Purple ducks and bouncing bombs Bug Blaster is a pseudonym for Cen populate the trickier levels. A really tipeed and is as good as any I've seen with hordes of invertebrates to torment



#### Frenzy Commodore 64 Micro Power Price £6.95

rod with a flood of colour.

resentation: Skill level: \*\*\*\*\*\*\* Interest: \*\*\*\* Value for money: \*\*\*\*\*

slow (green) and fast (red), the former sorbing. You really should have this in worth more points. Each time contact is your collection! made with the screen edge or previously constructed line, Bingo! the col-

Qix or Stix has surfaced again, this time ouring routine shades in the captured with the enlisted support of "A Whiter area. Of course, should the whizzing Shade of Pale". Completely out on its wand clobber you during mid-line you own scenario wise: the player guides a lose a life so it pays not to be too greedy module to partition the screen, trapping (but, of course it's no fun if you're not.) a manic stick within the last 5% of free. On later screens "perimeter chasers" screen or better still, drowning the rabid hunt you and the sticks multiply. The lure of this game is inexplicable, it's There are two modes of progress; ridiculously simple and yet totally ab-

#### Hooper Commodore 64 Calisto Price £7.95

Presentation:

Skill level: BEE Interest: ### Value for money: \*\*\*

has been transferred from the ac-Amadeus. cumulator, I sussed that this game was This variant has you collecting jelly a direct descendant of Crazy Painter: beans as a mission in life. Competent, that's the game where you dash round with deep reserves of tribulations to try

A supple wrist is essential, or failing please, software houses. that, Paul Daniel's fingers (all 20 of

Yet another game chopped up, re-them!) if you must use the keyboard hashed and served up as something The music was just recognisable as new. A split second after the first byte Rondo & la Turke: rest easy Wolfgang

a grid colouring in the squares whilst your skill through six screens and eight perfecting your skill at avoiding the par-speeds, but not the best available. So ticular meanies selected from the day's what's the point of doing it? More originality, less repedding of old ideas



#### Choc-a-Bloc Charlie Commodore 64 Lothlorien Price £6.95

Descentation: \*\*\* Interest: \*\*\*

Skill level: ##### Value for money: \*\*\*\*

this two-screen super-toughie. The setup is like Pengy but the plot is indi-avoiding, as do the time bombs left by vidual. Our chum is trapped in a theultra-helpful resident meanie. wharehouse. To escape he needs to create his own doorway by collating four purple blocks, which are embed ded in a maze of useless white squares. Isolated blocks may be pushed aside

droids carelessly released on moving

Reputedly there are 16 levels of play in the purple pieces of Lego

Obviously they need penning-in or

Gold blocks may be pushed through your exit for bonus points prior to your departure to the land probirty wheels

This tricky blighter is a real headwhereas others can be given the blast scratcher: my progress was painfully treatment. This course of action is ener-slow, excuse me while I practice. For exgy draining, as is contact with those pertsonly.



#### Strike Force Commodore 64 **Bubble Bus** Price £6.99

esentation: \*\*\*\* Skill level: \*\*\* Interest: ### Value for money: ####

The title page depicts a tank and for some unknown reason plays the theme from Mash. From then on you are inside. the tank looking out along the gun barrels, scouring the horizon by scrolling the screen at will. Although the Ballistic trajectory of your fire is not as convincing as Beach-Head or 3D Tanx, the same laws apply: effectively you control the markers as well as the direction

In the first wave scouting helicopt have to downed as they chatter across peak as Beach-Head

merely paying the way for a bombe raid on your base; engage those foes on screen two. Assuming their bombs haven't nullified your defensive capacity, you get to take on enemy vehicles in the final stage, as they swarm through your HQ: scroll, search and destroy

The difficulty levels (6 factors to set) may be finely tuned to taste. Graphics and sound are ok but not on the same



#### Warlok Commodore 64 Callisto Price £7.95

sentation: \*\*\*\* 

Interest: .... Value for money: OK, you're a Scramble fan but feel the screens, glittering bouncing cannon old timer needs revamping, to present a balls, space spiders(?) dangling from fresh challenge. Well, Warlok has bitten threads and indestructible droids are off chunks from its familiar forebear, some of the delights that await you in thoroughly chewed them up and regur- the cavern. And, yes, energy has to be gitated a highly interesting spin-off. Up to four stages can be selected (I

Mini mazes guarded by blipping lase

supped in the time-honoured fashion. The graphics are not from the very ertainly don't pretend to have mas- edge of innovation but from what I've ferently enough from Scramble to war- Silky scrolling and percussive sounds rant its devotees lurching out to grab a but no "Dance of the Sugar Plum Fairy" or similar, to sooth the troubled brow.



#### Cave Fighter Commodore 64 **Bubble Bus** Price £6.99

resentation: \*\*\*\* Skill level: #### Interest: .... Value for money: \*\*\*\*

ledge, as opposed to a platform, hopping game There are ropes to dimb, leaps to be

startle (well, amuse) you. A jumpomeconsideration in regions with restricted the SID chip in this chunk of addictive head-room.

By allowing yourself the luxury of 99 Danner areas to avoid are rock pools. lives, it is possible that all the 31 prejagged edges, snapping jaws, scouring selectable, scrolling caves will reveal the ropes and conglomerations of spittheir secrets to you. I suppose this is a ting aliens. Some of the tight squeezes appear to allow one pixel width for error. Precision is the watchword. As you would expect, the cave lavouts get made and 16 alien cavern-creepers to progressively tougher, while in each case the disposition of the nasties is enter, activated by the fire button, controls tirely randomised. "Chariots of Fire" the height of your leap; an important and various squeaks are processed by



#### Tazz Commodore 64 **Bubble Bus** Price £6.99

Presentation: BBBB: Skill level: ### Interest: BBB Value for money: Bug blasting has proved to be a rich vein for programmers; this latest nugget to be mined is slightly different from the norm. Your alter ego is dumped in a succession of ten rooms. each well peppered with mini-bugs and mega-bugs, very mobile sprite-nasties whose behaviour, form and temperament yary with each cubicle

Umpteen rounds of ammo plus a renewable arsenal of smart bombs are at your disposal, giving you the wherewithal to vaporise everything obnoxious before the advancing walls wreck havoc pers bothered?

with your overall dimensional After clearing each second room, up pops a bonus screen; digits and bombs to collect, but again beware of the marching

A good blast-'em-away, with an extra edge-of-your-seat, nightmare add-on. Should you find it all too easy there are another ten super rooms to tangle with. So keep your thumb on the button and your eyes on the screen if you don't want to end up as flat meat. Good fun but with no new ideas. Are screen zap-



# **SCREEN SCENE**

Kokotoni Wilf Commodore 64 Price £6.95



could make this game a bore.

You have to flutter around a four-way ally impassable to any but previous scrolling obstacle course avoiding the flyers. touch of just about everything, animate If you are dedicated enough the or otherwise, whilst endeavouring to there is plenty of scope to stretch your snatch a complete set of talismans, this wings

Highly individualistic, offbeat - weind being the key to the next epoch. There even ... according to your viewpoint. is something strange about fluttering Working your way through time zones around the statuesque dinosaurs (only is a sure-fire interest grabber as is the the small species move) but this can be challenge of mastering the idiosyn- accepted as "video-game logic". Quite crasies of feather-powered flight. But apart from the wild world on the surface performing just one task repeatedly there are twisting caverns aplenty; most of the tight squeezes seem virtu-



#### Jinn Genie Commodore 64 Micromega Price £8.95

An Arabian Nights-style, four part pot-spider (there's always one!) who may boiler. Before you can finally free an im- send you reeling. With the aid of your prisoned sage from the custody of an stun whatsit the brightness finally evil genie there's some travelling to do. shines forth revealing a magic jar. Into Devils home in on your flying door mat, the Genie's den you drag the urn, though naturally you can vaporise whereupon you discover the prisoner

Skill level: ####

extinguishing them: also beware of the

and key: put the three together to free After landing at the Genie's palace an the Wizard. The graphics are fair open window has to be found. This enough and you do get a helping of quest entails dodging about a maze, Eastern music. After two games at level eluding the guards and trying all the one I was left pondering why such a lot windows. Once inside, all the torches of effort had been expended producing have to be lit though guards insist on the game.

#### Jet Power Jack Commodore 64 Micro Power Price f6 95

Interest: BBCCC

eformoney: ##000

municado in a space garage ... but of ute's supply of oxygen. course, where alse?

Interest: www.co your inner will, Jack will pass with facili- gauntiets at will. Not my favourite game ty through a screenful of bone-shatter- but hard to fault.

We could soon be knee deep in Jet Pack ingly sharp-edged walls, electrified gagames, so choose with care. This exam-rage fittings, aliens generally zooming ple is entirely distinct from Rocket up and down like crazy with still more Roger (the other newle), even the "feel" cussedly bobbing about at a slower rate of the knapsack thruster is different. If of knots. No zapping allowed as you atyou haven't read the ad, fate has de-tempt to ferry a fuel pod to stoke up the creed that a gruesome galactic gargoyle fires in your escape craft. There is very should capture and hold you incom- little safe ground and a scant one min-

Any room may be selected, so you By welding the thruster controls to can trip gingerly through all five



#### Ankh Commodore 64 bere

Price £8.95



universe may well find food for thought In theory, your conscious, elemental primeval, pure state? Perhaps. At any

lock doors, defuse traps, accumulate eons. treasure, pick up tools and generally ponder the nature of metaphysical real-

Subscribers to the theory of a parallel the occasional sharp shooting Could this be thought of as an archetypal Adventure Game in a

being has been encapsulated in a mod-rate the interest will last as long as the ule which handily totes a gun and a re- esoteric conundrums haven't yielded to tractable probe; you guide this sensor your dilligent, inspired examinations, package through 64 rooms trying to un- which in most cases will equate with Be warned! ... this is a puzzle ... not a

ity. Experience, both visual and audial, 
Turn to page 73 for your chance to will equip you to make progress as will win a copy of this exciting game!



#### Mr Robot Commodore 64 Beyond Price £8.95

Skill level: ####:

First master machine code; then study games design, majoring in the platform "I was manic miner's double". No need factory where creating testing courses for level-hoppers is as easy as ... well ... and position the building blocks with transporter modules to master. played ad nauseum but only disk users ability to select any screen makes this a can save the extra screens for posterity. bumper-fun package.

The game itself features 22 screens from "getting started" to "in theory it idiom and you will be all set to produce can be done" - classic, helter-skelter gathering from inaccessible ledges. to trouble as appended to Mr Robot is a Features? Greasy poles, escalators, trampolines (good bounce simulation here), energiser pills, bombs, ladders pressing the fire button. At the foot of (naturally), treadmills et al. Patrolling the screen are all the units needed to the ledges are fiery aliens which need conjure up an arcadian's dream: edit extinguishing; that just leaves the the cursor. Your brain-child may be Good, brazen use of colour plus the



Deals:
• for :
Readers

Make your disks go like lightning!

Ingenious plug-in cartridge accelerates disk transfers – see the October review for full details. Sy RAM Electronics, who really do these things well.

do these things well.

Normal price: £49.95

OUR PRICE: £45.95

VICSPRINT for Vic & 64
Trippler Interface
Serial IEEE to 8

Serial IEEE to Centronics converter which doesn't use any program memory space for the doesn't use any program memory space in the doesn't use any program memory space for the doesn't use any printers (either dassywheel or dot marrix), and will work with next commercial packages. A RAM Electronics product RRP 148.98

OUR PRICE £45.95

# **Order Form**

isewhere, please add overseas postage on each item at	Europe	Elsewhere	FOR ANY USER	anko
			THE GOOD COMPUTING GUIDE	no. at £2.95 =
Books, binders, cartridges, assembler Tapes, video splitters, tee-shirts, covers	2.00	4.00	VIDEO SPLITTERS	no. at £1.75 =
Everything else	1.00	1.50	MUSICALC DEMO TAPE (AUDIO)	no. at £3.00 =
All offers subject to availability; please allow 28 days for		2.00	COMMODORE USER SWEATSHIRTS	no. at £7.75 =
If there is anything else you would like to see in Deals for	or Readers,	please list	COMMODORE USER TEE-SHIRTS	no. at £3.75 =
below:			COMMODORE USER BINDERS	no. at £2.99 =
			COMPUTER DUST COVERS	no. at £2.50 =
		O CONTRACTOR	CASSETTE DUST COVERS	no.□ at £2.00 =
FOR THE 64:		and the same of	BUTTERFIELD'S DIARY	no. at £3.99 =
THE COMPLETE 64	no. a	t £7.95 =	FOR THE VIC	RESTRICTED
SUBROUTINE COOKBOOK	no. a	t £7.95 =	VICTAPE 1 (GAMES FOR ANY VIC)	no. at £1.99 =
PIXEL PADS FOR THE 64	no. a	t £4.95 =	VICTAPE 2 (FOR UNEXPANDED VICS)	no. at £1.99 =
RAM 1541 EXPRESS	no. at	£45.95 =	SPECIAL OFFER: BOTH VICTAPES	no. at £3.00 =
RAM VICSPRINT INTERFACE FOR 64	no. at	£45.95 =	GETTING THE MOST FROM YOUR VIC	no. ☐ at £7.95 =
SIMPLY WRITE 64 TAPE WORD PROCESSOR	no. at	£34.95 =	GRAPHICS AID PACK FOR VIC	no. ☐ at £4.20 =
SIMPLY WRITE 64 DISK WORD PROCESSOR	no. at	£34.95 =	RAM VICSPRINT INTERFACE FOR VIC	no. at £45.95 =
OSIRISAN 64 TAPE ASSEMBLER	no. at	£17.95 =	SIMPLY WRITE VIC TAPE WORD PROCESSOR	no. at £34.95 =
OSIRISAN 64 DISK ASSEMBLER	no. at	£22.95 =	SIMPLY WRITE VIC DISK WORD PROCESSOR	no. ☐ at £34.96 ==
COMMODORE USER TOOLKIT CARTRIDGE	no. at	£27.50 =	OSIRISAN VIC TAPE ASSEMBLER	no. ☐ at £17.96 =
DAVID'S BASIC CARTRIDGE	no. at	£27.50 =	OSIRISAN VIC DISK ASSEMBLER	no. at £22.96 =
SPECIAL OFFER: BOTH TOOLKIT & DAVIDS	no. at	£50.00 =	GOLDEN GREATS PACK NO 1	no. at £6.95 =
NFOTAPE DATABASE (TAPE)	no. a	rt £9.95 =	GOLDEN GREATS PACK NO 2	no. at £6.95 =
DOODLE GRAPHICS PACKAGE (DISK)	no. at	£17.00 =	GOLDEN GREATS PACK NO 3	no. at £6.95 =
ARROW CASSETTE ACCELERATOR CARTRIDGE	no. at	£26.00 =	SPECIAL OFFER: ALL THREE PACKS	no. at £19.95 =
HELP TOOLKIT CARTRIDGE	no. at	£22.50 =	STACK'S VICKIT 2 EPROM	no. at £4.90 =
CENTRONICS INTERFACE CARTRIDGE	no.[] at	£22.00 =	STACK'S VICKIT 2 CARTRIDGE	no. at £11.25 =
RS232 INTERFACE CARTRIDGE	no. at	£29.95 =	STACK'S VICKIT 3 EPROM	no. ☐ at £4.90 =
64 COMPILER (DISK BASED)	no. at	£15.00 =	STACK'S VICKIT 3 CARTRIDGE	no. at £11.25 =
64 COMPILER (TAPE BASED)	no.[] at	£13.45 =	STACK'S VICKIT 4 EPROM	no. at £4.90 =
MUSICALC 1 DISK (SYNTHESISER & SEQUENCER)	no.[] at	£49.99 =	STACK'S VICKIT 4 CARTRIDGE	no. ☐ at £11.25 =
MUSICALC 2 DISK (SCOREWRITER: CBM1525, EPSON)	no. at	£34.99 =	RAM 'N' ROM CARTRIDGE	no. at £6.00 =
MUSICALC 3 DISK (KEYBOARD MAKER)	no. at	£34.99 =	IEEE INTERFACE CARTRIDGE	no. ☐ at £26.40 =
SPECIAL OFFER: MUSICALC 1, 2, 3	no. at i	[110.00 =	VIC FOUR-SLOT MOTHERBOARD	no. ☐ at £13.80 =
MUSICALC DEMO DISK	no. 🗆 a	st £6.00 =	8K STOREBOARD CARTRIDGE	no. ☐ at £20.50 =
TOTAL ORDER			CONTRACTOR DE PRODUCTION DE LA CONTRACTOR DEL CONTRACTOR DE LA CONTRACTOR	PARAS STREET

TOTAL ENCLOSED

Postal orders, cheques or money orders should be made payable to DEALS FOR READERS. Or use Access:

NAME ADDRESS 4 THIS IS YOUR DELIVERY LABEL - PLEASE PRINT CAREFULLY

\_\_\_\_

ACCESS CARD No

DATE SIGNATURE

Deals for Readers, Commodore User, The Metropolitan, Enfield Road, London N1 5AZ. 01-241 2448

#### To take advantage of these offers just fill in the order form on the back page.



Vickit 2: add nine programmer's aid commands and a dozen graphics commands to your Vic. RRP £6.00 chip, £13.00 cartridge ... our price:

EPROM £4.90 CARTRIDGE £11.25

Vickit 3: give a Victwenty new commands for hi-res graphics. RRP £6.00 chip, £13.00 cartridge ... our price:

EPROM £4.90 CARTRIDGE £11.25

Vickit 4: fast cassette load - loads and saves up to seven times faster. Includes auto-tape position and source text editor. RRP £8.00 chip, £13.00 cartridge ... our price

EPROM £4.90 CARTRIDGE £11.25

RAM 'n' ROM cartridge: for Stack's Vicket £6.00

IEEE Cartridge: run Pet peripherals on the Vic. £26.40

Vic Four-slot Switchable Motherboard: plugs four cartridges into one cartridge slot. RRP £15.00 £13.80

Storeboard: plugs into the cartridge slot to add 8K extra memory and a freebie Vickit 2. RRP £30.00 ... cur

£20 50 CARTRIDGE £11.25



### KEEP IT CLEAN

Keep your cassette and computer clean with matching black covers - effective, efficient.

Sticky keytops? Things falling past the keys into the computer or the tape beads? Don't take the chance. When you've not using your Vic or 64, stip over one of our tailored Commodore User dustcovers - a smart black number featuring the magazine's logo on top-They do keep out dust, but they'll also cope with coffee appliances (anything less than a thunderstorm in fact). apparents carrying used used a treatment of selection of operation of organized cats. and the general detritus of daily life.

£2.50 computer covers £2.00 cassette covers £4.25 one of each

#### TWO SPECIAL CARTRIDGES FOR THE 64

We've commissioned two special add-ons for the 64 from Whitby Computers, another company whose products we reviewed and liked. Just look at what you get: David's Basic

#### The Commodore User Toolkit Cartridge

... for easier programs What everyone needs: ATITO automatic line number

FIND lists all lines containing specified string LINES instantly calculates the number of lines in your

MERGE merges program from disk or tape, interleaving RENU renumber program (including GOTOs, THENs,

COSUBs, etc.) Handy for variables: DUMP lists names and current values VAR lists variable names

Sexy sprites: DESIGN multi-colour sprite editor SPRITE sets position, colour, mode HITBACK detects sprite himing background HITSPR detects sprite himing another sprite

Neat extras: MON Pet-type machine code monitor USER add new commands FUNC defines function keys SHRINK removes REMs and all unnecessary spaces CURSOR puts the cursor at specified position

PRICE: £27.50

#### CYBERGRAM DESIGN YOUR OWN VIC SCREENS

Scillant idea, though it's simple really; the Cybergram nemand name, unaugus no name would, an open and Designs Vic-20 Graphics Aid Pack is a set of overlays and printed sheets on which you can immediately see who patterns andress of which you are managed and colour, and the PORE locations you need for display and colour, and you can use successive sheets to set up a specific you can used association assessed as on any a specially Sporyboard from which to organise and visualise the se-

quences in a graphics program. Your pack includes planner sheets for the standard 22 x 23 screen and ploner sheets for the 1023 x 1023 bi-ses graphics using the Super Expander, you also get a set waspines today and wagen despines sheets that simplify the construction of your own shapes.

Very nest, very clever - and really useful too ... and at a discount from the normal \$300 of £4.50.

Normal Price £4.50

#### for better programs

Ways with numbers: AVG averages elements in an array

Ways with strings: PADS fills out a string with spaces SEARCH searches array for given string SORT sorts arrays

Extra goodies: ERROR intercepts program errors Clever programming:

CEND conditional END POP removes last subroutine from stack - avoids 'out of memory errors PUSH puts a subcoutine return address on to stack -

simulates GOTO EXEC a bit like PROC or labelled subroutines ON used as ON < key > GOTO or GOSUB SWAP loads another program, retaining all variables

Defterdisplays: CLOCK continuously displays the time at stated position LWIND Load Window - loads a ready-to-go screen dis-

DISP displays centered message Easier input: DATES turns a numeric date back into a conventional

DATIN foolproof date input routine GENIN foolproof input routine - checks input against specified pattern of acceptable characters

Perfect printing: PRINT's automatically justifies columns of money fig-PRINT # adds true printer tabs

SCOPY acreen copy PRICE: £27.50 and 18 other commands

SPECIAL BARGAIN OFFER: order the two at the same time ar save a fiver - £50 for the pair



#### WEAR YOUR MAG!

odore User tee-shirts and sweatshirts are in computer or the beach at Torremolinas or the lounge bar

£3.75

Cobalt blue, with the magazine's logo big and bold across the chest. State size when ordering: we have small, medium, large and extra large.

£7.75

#### OSIRISAN SYMBOLIC Assembler/Disassembler

A major update and enhancement of the well reviewed is help uponer and entertainment of the west between June 84) Freditor Osirisan assembler from Elmbirst En-Neprise. A symbolic disassembler has been added which allows synthesis of your own program source which you can then view, after and reasonable. Disk users will additionally now get the powerful version 3

Tape: £17.95 Disk: £22.95

Instant database for your 64

#### INFOTAPE

fig-

n

and

Why buy lots of different data storage systems when just why buy tots of dimeters data storage systems when you one will do? INFOTAPE 64 is a powerful yet easy to use dushase system for tape users, and stores up to 3,000 data items with you defining the number of fields per record. Totally flexible; and interpretive in nature, with the tile has been created. Powerful to conclude to built-in (giving spreadsheet capability): batch processor port generator is included to provide anything from a put germator is moraned to provide anyone gammed label for a mail shot to tabular reports.

Normal price: £16.95 OUR PRICE: £9.95

Special Offer: When you upgrade your system to use a disk drive, INFODISK will be able to retrieve your tape records - and your INFOTAPE order from us comes with a £20 off voucher against the disk version





#### SIMPLY WRITE

Simple, low-cost word processing for

You won't find a better word processor at the price - has all the functions you'd ask for from a £200 package, and it's friendly and easy to use

Disk or tape at only £34.95





Stack claims this joystick is "almost" unbreakable: we'll vouch for that. Non-slip rubber sucker feet, two fire buttons, shaped grip.

Four-slot Switchable Motherboard for the 64

Instant expansion for the 64. Plugs into the cartridge slot, lets you plug in up to four cartridges. Normal: £38 £29.95

Instant Interfaces Plug any printer into your 64

£22.00

torl

Run any printer (or plotter, or maybe even modem) on your 64. These interfaces by Stack convert the 64's odd IEEE signals into something the printer can handle

Centronics RS-232C Interface: Interface: Normal £33.00 Normal £24.00 £29.95

The HELP Cartridge for the 64 All those extra commands you want!

A programmer's aid cartridge for the 64 from Stack. Adds twenty toolkit commands to Basic (auto line number and renumber, find, step, trace, etc. plus hex-dec converter) and a comprehensive monitor and disassembler and several single-key disk-handling commands.

Normal price £25.00 OUR PRICE £22.50

The Arrow Cartridge

Tape save/load seven times fas-

£26.00 This Stack cartridge for the 64 gives not just the

high-speed cassette operation ... but also a full version of the TIM Machine Language monitor ... and fast-forward to any of nine predetermined positions on a cassette ... and a hex-dec converter with hex arithmetic built in.

CBM 64 Basic Compiler

This turns your normal Basic programs into superfast machine-language-speed code! On tape.

Normal Price £14.95



# BOOK

The most useful books we've found for the Vic & 64.

ners and experts alike.

Dennis Jarrett: Getting the Most

from Your Vic-20: Just bought a Vic-20? Then you'll need this comprehensive, carefully designed

book to help get to grips with it.

Commodore 64 Subroutine Cook-

book: David Busch For would-be programmers everywhere. It's concise and accurate with excellent line-by-line descriptions guaranteed to turn you into an expert.

The Complete Commodore 64: Dennis Jarrett

Another excellent book - covering all the angles of the 64 to help both begin-

The Good Computing Book For Be-

ginners (3rd edition):
The essential A-Z on computing. Withily scripted, well thought out but most of all



Deals For Readers 01-241 2448

Save over £50.00 in this month's catalogue with a wider range of deals on the best of Vic and 64 products

Some of them, like the dustcovers and the Victuals tapes, we have produced ourselves. The others are things that we regard as Good Ideas and Good Value, mostly items reviewed in Commodore User

On most of those we have fixed up discounts for readers (and while we aren't allowed to sell books at cut price, we can include P&P in our price)

If you want to take up any of the offers, just use the Order Form on the back page.



#### VICTAPES

antastic

Value

10 GAMES

the pick or reader's programs for the VICTAPE ONE - ten games for any Vic

VICTAPE TWO - ten games for ex-



Mangrove

All-time favourites - action and colour, great for the kids.

SPECIAL - ORDER ALL THREE

GOLDEN GREATS Vic Games from Audiogenic PACK ONE: Amok • Alien Blitz • Bonzo

PACK TWO: Country Garden • Kaktus PACK THREE: Shifty . Pit Golf



Crammed with hints and tips, this compact robust edition is a must to get you and your 64 through 1985!

£3.99

# CREATE SUPER VIDEO GRAPHICS



Menu selections on the screen can be conveniently displayed while the graphic is being create. In this way, the user will not to lose sight of the drawing by constantly switching back to the menu, as in most touch most not partially should be sufficiently switching back to the beginning to the state of the sufficient with the sound cursor can be eliminated from the screen with the touch of a button.

The "Expert Menu" adds a variety of computer automated features such as circles, boxes, rays, lines, and copy among others. A "Flies Menu" allows the user to save pictures and retrieve them from a stored data bank. This command supports disk and tape storage.



FOR THE CBM 64

Until now, creating computer graphics in colour has beer both a demanding and expensive endeavour. The "Super Sketch" Graphics Tablet provides a totally unique and simple medium for creating video graphics at a surprisingly low cost

medium for creating video graphics at a surprisingly low cost. By simply moving the stylus control arm, as you would a pencil, Super Sketch reproduces the movement on the video screen. Four control buttons at the top of the tablet assist in operating the graphic functions of the software. Craphics may be created by "free hand" or by "tracing" from drawings clipped to the pad.

Compared with other computer graphic products, it is much easier to use than keyboard controls, does more than joysticks, paddle controllers and mouse controllers, and is less expensive than touch pad products.



# **Comes Complete In One Package**

Included in each package is all you need to create super graphics. A software cartridge is included in each page along with the Super Sketch controller pad (as described on the package). Also included is a comprehensive instruction manual and a "Starter Kit" that consists of several drawings that can be traced from the pad.

STONIECHIP

Please forward to me the following products:
.....Super Sketch Graphics Pack at £59.95 inclusive.

Name:....

Please debit my Access card 5224

Signature.....

livery: 14 days.



Victoria

#### MUSIC 64 - COMMODORE 64

Not just another music program, this one actually calculates the exact pitch of each note to produce an even-tempered scale over seven octaves.

be

la.

Lines 50 and 60 take care of this. By altering the value of 'c', the 'instrument' can be tuned to match your guitar or

The music is stored in Data statements read by lines 100-160. The information is stored in the Data statements from line 400 on, and each item is structured in the following way, to make it easy for you to create your own music.

Fach Data statement can contain any number of items, as long as they don't exceed the 64's limit of 79 characters. Each item should contain nine characters excepting items for defining voice/tempo changes, for

example, line 434, which takes the form (waveform 1...3(, new tempo /10): three for each of the three voices. Where a voice is not required to play, the relevant three characters are filled with 'xs. This is largely to assist you in entering the correct number of characters per

data item.

This is intended as an 'experimenters' program, so be prepared to experiment to get the

results you want. Have fun . . . by Peter Bartley

10 PRINT\*ICLS||CTRLN||CTRLH||\*\*|PDRES||281,|2:|PDRES||280,|1:|AB=\*[UHT]||GR3]||L GRN||L SUUICVN||L RED||TVEL||GRN||GRU||TUP||RED||CONSIDENS||EUX||\*\*|PDRES||13005||EPX|| IF POR-||TOID-1-||PRINTEFTE(AB,|T)\*|-(ACS)||COSACH-64 STYLE:|CUS1\*||PDRES||TOSO||NEXTY,|

PRINT
12 NEXT:FORI-1T02000:NEXT:PRINT-[2CD][YEL][G)TJRANSLATED TO THE '64 BY [G)PJETER
(G)HJ (G)BJABTLEY"

(6)M1 (6)B1ARTLEY"
13 FORI=1T02000:NEXT:PRINTTAB(17)"(RED)AND":FORI=1T02000:NEXT

30 S=54272:S105:1:S2=5+4:S3=5+7:S4=S+8:S5=S+11:S6=S+14:S7=S+15:S8=S+18
40 FORA-OTO24:POKES+A,0:NEXT

50 FORI=1T012:FORJ=0T06:C=57743/2\*((13-1)/12\*J) 60 A(I,J)=INT(C/256):B(I,J)=INT(C-256\*A(I,J)):NEXTJ,I

70 POKES+5,42:POKES+6,48:POKES+12,106:POKES+13,48:POKES+19,74:POKES+20,51

100 READAS: IFLEN(AS) -9THEN130

110 IFAS="1END"THENEND 120 W=VAL (AS):P=W/X:W=W-INT(P) %X:G=W/Y:W=W-INT(Q) %Y:R=W/Z:H=(W-INT(R) %Z) %10:00T0

120 BUVAL (LEFT#(A#, 3)):E=VAL (MID#(A#, 4, 3)):F=VAL (RIGHT#(A#, 3))

140 IFBTHENPOKEST, P:B1=D/10:B2=D-10\*INT(B1)
150 IFETHENPOKEST, G:E1=E/10:E2=E-10\*INT(E1)

200 IFD:OTHENPOKES, B(D1, D2):FOKES1, A(D1, D2):POKES2, F+1
210 IFE:OTHENPOKES3, B(E1, E2):FOKES4, A(E1, E2):FOKES5, B+1
220 IFF:OTHENPOKES4, B(E1, E2):FOKES7, A(F1, F2):FOKES5, R+1

200 IPF:01HENPURESE, EFF. P2:PURESE, AFF. P2:PURESE, K 300 FORT=1TOH.NEXT:GOTO100 399 REMARKANIA

400 BATACOGII4000, NOGOCCOCK, 113:000000, 012:00000X, 032:114113, 062:00000X, 042:00000X 402 BATACOGII400000X, 032:00000X 404 BATACOGII400000X, 032:00000X 406 BATACOGII400000X, 032:00000X

406 BATAGIZONDON, GIZZONDON, MARCHAN (10 62114034,042000000,032000000,012084044 410 BATAGIZONDON, 113000000,082104-10,0821040000,032000000,013000000,013000000,013000000,013000000,013000000,0120000000,0120000000,03104-10,1030000000,0120000000,042104064

414 BATAGIZZHOSODK, 012200000X 416 BATAGIZI14-10, 11300000X, 01220000X, 032114084, 0620000X, 0420000X, 042114044 418 BATAGIZZHOSOK, 06220000X, 06220000X, 042000X, 042000X, 113114034

422 BATA612000000X, 02300000X 424 BATA623140044, 043000000X, 04200000X, 053844054, 01200000X, 113300000X, 063064-10 426 BATA6130000144, 050900000X, 06200000X, 06200000X, 03200000X, 113-10-10

430 BATA0320000X, 06200000X 432 REN 434 BATA64323251 436 REN

440 DATA042113084,XXXX063104,032XXXX114 442 REM 444 DATA32646417

449 BATA012043104,063-1090K,08300000K,10300K-10,0120000K,11300000K,11300000K,0120000K 450 BATA0420000K,03200000K,10300000K,06300000K,10300000K,01200000K,042004KKK

e 492 DATAO4220450XX,012300000X,103300000X,06230000X,01230000XX,0422040AAA
495 DATAO32114114,113000000X,01200000X,03200000X,06200000X,04200000X,042114084

458 DATAGBZ00000X,06Z200000X 460 DATAII3114044,11200000X,10Z30000X,11Z300000X,06Z300000X,03ZXXXXXXX,113114084 462 DATAG1220000XX,03Z20000X,01Z943044

468 REM 470 DATA032XXXXXX,042XXXXXX 472 REM

474 DATA32646417 476 MEM 478 DATA63206364,012000007,1120000000,063043064,1130000000,1030000000,113033114

488 DATA-10-10-10 490 DATAIEND Package tours ain't what they used to be. According to Simon Veryard, you're on holiday on the Planet Thorn, a place famous for its rocket rides. Unfortunately, just like everything on holiday, they cost too much

money.

But help may be at hand in the form of money bags falling from the sky. More well, the crooks that robbed the local bank forgot to close the hatch of their getaway rocket — sounds

You need to collect ten bags to pay for a rocket trip. Oh, and don't forget to avoid the killer Thunder Bolts and the Cyclons - citizens of the planet who don't like the idea of you frittering away their hard-earned savings when they'd rather spend it on a trip of their own. Pressing a key makes your man move to the left. If no key is pressed he automatically moves to the right. The more ambitious can speed up the game by adding extra SYS 674 to line 150

The program loads in two parts: type-in and save them separately. Then load and run the first part before loading the second.

by Simon Veryard

Part One O REM \*\*\*\*\*\*\*\*\*\*\* 1 REM \* 2 REM \* UREKA 1984 3 REM # BY :- SIMON 5 REM # A REM & VERYARD REM \* 8 REM \*\*\*\*\*\*\*\*\*\* 9 REM 10 FORI=7168T07679:POKEI, PEEK (25600+1):NEXT 15 FORT=674T0757: READA: POKET. A: NEXT 20 FORT=OTO9 30 FORI=7168+(8\*T)T07168+(8\*T)+7 40 READA: POKEI, A: NEXTI, T 50 POKE56,28 100 DATA 162,0,189,118,31,157,96,31 101 DATA 232,224,110,208,245,162,255,189 102 DATA 52,30,157,74,30,202,224,255 103 DATA 208,245,162,52,189,0,30,157 104 DATA 22,30,202,224,255,208,245,169 105 DATA 7,174,60,3,157,73,31,165 106 DATA 197,201,64,208,15,169,0,232 107 DATA 157,73,31,224,22,208,2,162 108 DATA 2,76,242,2,169,1,202,157 109 DATA 73,31,224,1,208,2,162,21 110 DATA 142,60,3,96 111 DATA 8,29,9,78,72,120,8,255



112 DATA 16,184,144,114,18,30,16,255

113 DATA 203,203,170,0,2,135,183,255

Victory

```
114 DATA 60,24,102,239,199,239,195,126
115 DATA 129,195,102,60,24,126,60,24
116 DATA 66,36,60,90,126,102,60,102
117 DATA 219,231,219,255,255,24,36,126
118 DATA 0,0,0,0,0,0,0,255
119 DATA 24,60,126,171,213,255,255,231
120 DATA 60,60,126,255,231,66,36,24
200 POKE36879, 25: POKE36865, 160: POKE36869, 255
215 PRINT"[CLS][REV][BLK][CR][GRN]UREKA [BLK]- VIC 20 3.5K"
220 PRINT"[REV][PUR][CR][5G(U]*
225 PRINT"(REV)(RED)(CD)YOU ARE ON THE PLANET THORN COLLECTING MONEYTO BUY YOURS
ELF";
230 PRINT" ROCKETRIDES AROUND THE ULTRASPACE!!"
235 PRINT"(REV)(CD)(BLK)BEWARE!! (RED)THE PLANET(3SPC)RAINS KILLER THUNDER(2SPC)
BOLTS, AND WATCH OUT ";
240 PRINT"[REV] FOR THE MUGGER CYLONS."
245 PRINT*[REV][7CR][12G(0]*
250 PRINT"[REV][BLK][2CR]F[RED][4CR][G<G][0FF][CYN]D[REV][RED][9SPC][G<M]*
255 PRINT"[REV][BLK][2CR]R[RED][4CR][G<G][]0SPC][G<M]*
260 PRINT*(REV)[BLK][2CR]E[CR]K[RED][2CR][G(G][7SPC][0FF][GRN]C[REV][RED][2SPC][
G(M)"
265 PRINT*(REV)[BLK][2CR]S[CR]E[RED][2CR][G(G][10SPC][G(M]*
270 PRINT"(REV)[BLK][2CR]S[CR]Y[RED][2CR][G<G][10SPC][G<M]*
275 PRINT*[REV][7CR][G>L][BLK][5G(@)[OFF]A[REV][4G(@)[RED][G)@]*
280 PRINT"[REV][BLK][2CR]A[RED][4CR][12G>L][G(G]"
285 PRINT*(REV)[7CR][2G)L][0FF]E[REV][9G)L][G(G][HOM]*
290 FORT=160T038STEP-1:POKE36865,T:FORI=1T030:NEXTI,T
300 GETAS: IFAS=""THEN300
305 POKE36869, 240: PRINT" [CLS]NOW LOAD MAIN PROGAM."
```



Victorial

#### Part Two

5 1-7-017-070-0223-15
30 PORES-7-2010-02-4
10 PORES

60 GGF - GETTOR TOWNS THE STATE OF THE STATE

70 Andre 1 plantarios (2007) (1907) (

49 PORTI, THE COLORD TO THE SECOND TO THE SE

100 ME 7160-E1-72,75,F04E1.0 115 69-E0007-FER: 1221.7 105 69-E0007-FER: 1221.7 105 69-E0007-FER: 1221.7 105 69-E0007-FER: 1221.7

100 MMS17410076420 400 M0184, 200888-20020, 500-004 400 M0184, 200828-200204 400 M0181-1, 20082 400 M0181-1, 20082 400 M0181-1, 20082 400 M0181-1, 20082 400 M0181-1, 20082

40 PORTO - FEB (400) 22 10 PORTO - FEB (200 T00) 40 PORTO - FEB (200 T00)

#50 FORT-SITETORISE 400 FORT, DOLLTONET -SITETO, SITEMAS, DATA AND PRODUCES OF SITEMAS (CARSON SITEMAS)

or consequences, for any for consequences, for a consequence and a consequence of first consequence, about the first consequence consequences, find a for the consequence consequences, find and for the consequence consequences, find and for the consequences of the consequences.

565 PONETNE - MEDI - 1020 - 12 100 Ser - CORSIGE MACESIGE MEDIUM CANADA 502 PONETNE (1000 100 PONETNE (1000 100 PONETNE (1000) 100 PONETNE (1

500 DF-AGREGATION
300 FAR CT-, 105 - FIRST
500 FAR CT-, 105 - FIRST
500 FAR CT-, 105 CREAT- CACUT LARGEST
500 FAR CT-, 105 CREAT- CACUT LARGEST
500 FAR CT-, 105 CREAT- CACUT LARGEST
500 FAR CT-, 105 CREAT- CACUT
500 FAR CT-, 105 CREAT500 FAR CT

(70 PRINTERNAL 2018)
775 FF1 PRINTERNAL 2018
775 FF1 PRINTERNAL 2019 FF1 PRINTERNAL 20

600 MRITORE POPULATION OF PROCESS TO LITTERED, BUTTONES, AND RESTAUR, BUTTONES, AND RESTAUR, BUTTONES, AND RESTAUR, BUTTONES, TO ARREST PROCESS TO ARREST

46 TESTOMETROPHISTORIANSHITT

51 THISTORIANSHITT

52 THISTORIANSHITT

53 THISTORIANSHITT

54 THISTORIANSHITT

55 THISTORIANSHITT

56 THISTORIANSHITT

57 THISTORIANSHITT

57 THISTORIANSHITT

58 THISTORIANSHITT

58 THISTORIANSHITT

59 THISTORIANSHITT

59 THISTORIANSHITT

50 THISTORIANSHI

000 (1971-1970) (1980-1971) (1991-1970) (1

10 PRINT, ELLI NI CHORN DOCANIZIENT NUMERICEOTRA JPC (1000 NO MENOLAGON DERENIZIEDEN TOTOPOTE ER HONE ELT TOTOPOTE ER HONE (1000 NO PARENIZIED STANDARD (1000 NO PARENIZIONE EL TOTOPOTE ELECTRICA (1000 NO PARENIZIONE EL TOTOPOTE EL TOT

TO TURNOTHER DISTRIBUTED AND THE PROPERTY OF T

THE THEM THOMPS





# Computer Centres

48 Junction Road, Archway, London N19 5RD. Tel: 01-263 9493/5

## 238 Muswell Hill Broadway, London N10 3SH. Tel: 01-883 3705 WELCOME TO THE WORLD OF COMMODORE

Maintenance, Service, Support, Training all from you No 1 Commodore centre.

£195.95

COMMODORE 16
THE STARTER PACK
Commodore 16 computer
Consecte unit
Intro to Basic part 1
Intro 16 Pager games
ONLY £139.99

COMMODORE 64

PROFESSIONAL SYSTEM

Commodore 64

Easy Script (wordprocessor

Box of paper

MPS-801 dot matrix pr

#### — Commodore 64 —

# PLUS 4 THE OFFICE AT HOME Built-in software Wordprocessor Database Spreadsheet Business

## Spreadsheet Business Graphics ONLY £299.00 PRINTERS

# | RX80T | E241.50 | RX80FT | E274.85 | RX80FT | E274.85 | RX100 | E442.75 | FX80 | E399.95 | FX100 | E371.50 | E471.50 | E471.

## ONLY £599.00 —

STARTER PACK fommodore 64 computer cassette unit Intro to Basic part 1 Quickshot II joystick

A game of our choice

ONLY £255.00 —

Commodore 1701	Monitors —	
Microvitec 1431AP		

CBM 64 - Epson inf

Monitor plinth

#### -Terms -

Software for above (cass) ....

All products are guaranteed for 1 yeer unless otherwise stated. Payment may be made by Access, Barclaycard, Bankers Draft, Building Society cheque, cash or postal order. Sorry cheques need five days for clearance. We reserve the right to change prices without prior notice. All prices are inclusive of VAT.

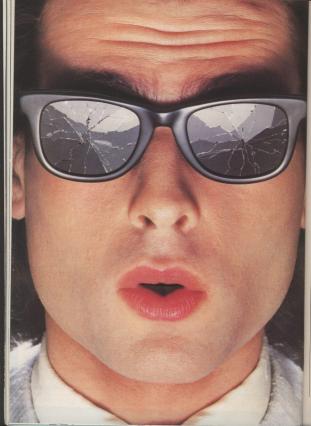
#### -- 64 SOFTWARE

| Gardine | Gard

#### MEDIA SUPPLIES -

Disks by Verbatim			
SS/DD 40Tr	£17.95	SS DD 80T	£24.75
b DS/DD 40Tr	£28.92	DS/DD 80T	r£32.75
Lockable disk storag Disks are supplied in	e boxes 40 t boxes of 10	80 16.50/25.	25
Computer listing p 11x8.5	11x9.5	12.65 sheets	11x15%s 15.52
Printer ribbons MPS-801 6.99 MPS-802 7.99	RX80 FX 1515/1525	80 5.00	Daisystep 5.50 Juki 1.85

We also supply a range of dust covers, daisy wheels and other ribbons.



## You should see what he's just seen.

Micronet 800.

Stretching the mind of your micro far beyond its limits.

Micro evolution continues with this unique communications, informations and software system. Set on our mainframes nationwide. Includes 30,000 pages and access

to Prestel\* with its full range of services.

A tremendous Communications section that networks you to thousands of other members across the country.
Send and receive electronic messages

and graphics at a touch of a button.

And there's the Chatline service,
Swapshop and Teleshopping.

Check with daily updates on the very latest computer news.

Micronet also has its own huge facts data base.

And a choice of up-to-the-minute software to download absolutely free.

For only £13 a quarter and just a local telephone call whenever you want to connect up (that's only 22p per half hour at cheap rates) you could be

part of Micronet.

The only accessory you need is a

The only accessory you need is a Modem.

A small price to pay to join the other visionaries on this exciting new

micronet

Fill in the coupon for more details and send to Micronet 800, Durrant House 8 Herbal Hill London FCIR 5EL

House, 8 Herbal Hill, London EC1R 5E But be warned, Micronet 800's features are almost limitless and

features are almost limitless and constantly updating. So maybe you'd be better to call in at Laskys, John Lewis, main Boots or your local Micronet 800 Action Station.

To feast your eyes on all the

amazing things it can do.

Tec MICRONET 800, Durrant House, 8 Herbal Hill,
London ECIR 5EJ, Telephone 01-278 3143.

Please send me the full facts about Micronet 800.

Name Make/Model of Micro.

97% of selephone users.

## See Micronet 800 in action.

#### Bath. Boots, 1 Marchants Passage, Southgate, Tel: 0225 64402 Bristol. Boots, 59 Broadmead, Tel. 0272 293631 stol. John Lewis, Horsefair. tol. Laskys, 16-20 Penn Street 0272 20421.

Keynsham, Key Computer System 42b High Street, Tel: 02756 5575 42b High Street, Tel: 02756; Weston-super-Mare, K & K Computers, 32 Alfred Street, Tel: 0934 419324.

BEDFORDSHIRE Bedford, Boots, The Harpur Ce Harpur Street, Tel: 0234 56231 Harpur Street, Tel: 0234 5b;231. Dunstable, Dormana, 7-11 Broad Walk, Tel: 0582 38302. Walk, Tel: 0582-38302. Leighton Buzzard, Datasine, 59 North Screet, Tel: 0525-374200. Leighton Buzzard, Milton Krynes Music & Computers, 17 Beidge Street, Tel: 0525-382504. Street. Tel: 0525 382504. Luton. Hobbyte. Unit 16, The Arndale Centre. Tel: 0582 457195. Luton. Laskys. 190-192 Arndale Centre. Tel: 0582 38302. Luton. Terry More, 49 George Street. Tel: 0582 23391.

BERKSHIRE Reading, Heelas, Broad Street Tel: 0734 559555

ading. Laskys, 118-119 Priar St. 10734 595459 Slough. Data Supplia Templewood Lane. Farnham Common. Tel: 2 820004. Slough. Laskys. 75 Queensmere Centre. Tel: 0753 78269.

Slough. MV Games, 245 High Street. Tel: 75 21594 BUCKINGHAMSHIRE Bletchley, RAMS Computer

mesham. Reed Photo & imputers, 113 High Street. d: 0494 783373. Milton Keynes, John Lewis, 11 Feld Walk, Secklow Gate East, Tel: 0908 679171 CAMBRIDGESHIRE

Cambridge, Boots, 65-67 Sidney Street and 28 Petty Curry Street. Cambridge, Heffers Stationers, 19 Sidney Street, Tel: 0223 358241 9 Sidney Street, Tel: 0221 ambridge, Robert Sayle

Peterborough, Boots, 40-42 Bridge Street, Queensgate Tel: 0733 65352. Peterborough, John Lewis, Queensgate Centre, Tol. 0733 4464. CHESHIRE

Chester Boots, 47-55 For Chester Boots, 47-55 Foregate Street Tel. 0244 25421. Chestes Computer Link, 21 8t Worburgh Street. Tel. 0244 316516. Chester Laskys, 7 The Forum, Northgate Street. Tel: 0244 317667. Crewe. A3 Wootton & Sons, 116 Edieston Road. 7th 0270 214118.

Crewe. Midshires Computer Centre, 68-78 Nantwich Road. Tel: 0270 211086.

Ellesmere Port. RFRTV& Audio.

Macelesfield. Camera Computer Centre, 118 Mill Server.

let: 0825-27468.
Macclesfield. Computer Centre.
68 Chestergne. Tel: 0825-618827.
Marple. Marple Computer Centre.
30-32 Markes Sersect.
Tel: 001-427-4328.

Tet 061-427 4328.
Stockport. National Micro Centres.
36 St. Procespor. Tet: 061-429 8080.
Stockport. Stockport Micro
Centre. +6 Brown Street.
Tel: 061-477 0248. Widnes. Computer City. 78 Vice Road. Tel: 051-420 3333. Wilmslow. Wilmslow Micro Centre. 62 Grove Street. Tel: 0625 530890.

CLEVELAND Middlesbrough, Boots, 88-90 Linthorpe Road, The Cleveland Centre. Tel: 0642 249616.

CUMBRIA Kendal. The Kendal Compute Centre, Stramongate. Tel: 0539 22559.

US King Street, Tel: 0946 2063. Workington, Technology Store, 12 Finkle Street, Tel: 0900 66972. DERBYSHIRE reton. Gordon Harwood.

Chesterfield. Boots, 35-37 Low Pavement, Market Place: Tel: 0246 203591 Chesterfield. Computer Stor 14 Stephenson Place. Tel: 0246 208802.

Exeter Boots, 251 High Street. Tel: 0392 32244. Exeten Open Channel. Central Station, Queen Street. Tel: 0392 218187.

Tel: 0392 218187.

Plymouth. Syntax, 76 Cormull
Street. Tel: 0752 28705.

Scaton. Curtis Computer Services,
Scaton Computer Shop.
Slc Harbour Road. Tel: 0297 22347.

Tiverton. Actron Microcomputers,
2 9.

DORSET Bournemouth, Brook Come Bournemouth. Lanadowne Computer Centre, 1 Lanadowne Dorchester. The Paper Shop Kings Road. Tel: 0305 64564

ESSEX Chelmsford. Maxton Hayman, Colchester. Boots, 5-6 Lion Walk Tel: 0206 577303.

Grays, H Reynolds, 28a S Road, Tel: 0375 31641. Harlow, Laskys, 19 The Harvey Centre, Tel: 0279 443495, Hornchurch, Comptel Compu Systems, 112a North Street. Tel: 0402 446741. Ilford, Boots, 177-185 High Read. Tel: 01-553 2116. Southend-on-Sea. Co

Southend-on-Sea. Computer outhend-on-Sea, Estuary

GLOUCESTER Cheltenham, Luskys, 206 High Street, Tel: 0242 570282. Cheltenham, Screen Scene

Tel: 0242 328979. Gloucester. Boots, 38-46 Eastgate Street. Tel: 0452 42350L HAMPSHIRE ngstoke, Fishers, 2-3 Market Tel: 0256 22079.

Southampton. Business Electronics, Micromapic At Atk

Southampton, Tyrrell & Green, Above Bar, Tel: 0703-27711. HERTFORD

HERTFORD
Hitchin. County Computers.

13 Buckledury Tei: 0462 36757. Hitchin. GK Photographic & Computers & Hermitage Road. Tei: 0462 39285.

Tei: 0462 39285.

16 Tomputers Shop, 197 High Steer. Tei: 0707 44417.

Severage. D Computers.

11 Town Square. Tei: 0418 65500.

11 Town Square. Tei: 0418 65500.

Watford. Lasky, 18 Charter Place.

Il Town Square. Iet trass tixtore. Watford, Laskys, 18 Charter Place. Tel: 0923 31905. Watford, SRS Microsystems 94 The Parade, High Street. Tel: 0923 26602. Watford. Trewins. Queens Road. Tel: 0923 44266. Welwyn Garden City, DJ Computers, 40 Fretherne Road. Tel: 96 28444.

Ici: 96 28444. Welwyn Garden City. Welwyn Department Store. Tel: 0707 323456. HUMBERSIDE Beverley. Computing World. 10 Swabys Yard. Dyer Lane. Tel: 0482 881831.

KENT Beckenham, Supa Ce 425 Croydon Road. Tel: 01-630 3569.

15-16 Broadway Shopping Centre. Tel: 01-301 3478. Tel: 01-301 3478.

Bromley, Boots, 148-154 High
Street, Tel: 01-460 6688.

Bromley, Computers Today,
31 Market Square, Tel: 01-290 5652.

Bromley, Lankys, 22 Market
Square, Tel: 01-464 7829.

romley, Walters Computers rmy & Navy, 64 High Street E 01-460 9991 Chatham, Boots, 30-34 Wil Square, Pentagon Centre Tel: 0634 405471 renoaks. Ernest Fielder Computers, Doeset Street cl: 0732 456800

Sttingbourne, Computer Plus, 65 High Street. Tel: 0795 25677. Tunbridge Wells, Modata Computer Centre, 28-30 St Johns Road, Tel: 0892 41555. LANCASHIRE

Blackburn. Tempo Computers, 9 Railway Road. Tel: 0254 691333. Blackpool. Blackpool Computer 39-43 Standish Street. Tel: 0282 54299. Preston. 4Mat Computing. 67 Frangate. Tel: 0772 561952

Wigan, Wildings Computer LEICESTERSHIRE

Leicenter, Boots, 30, 36 Gallowtree Gate: Tel: 0533 21641. Market Harborough, Harborough Home Computers, 7 Church Street. Tel: 0858 63056. LONDON WL Computers of Wigmore Street, 104 Wigmore Street. Tel: 01-486 0373. WL HMV, 363 Oxford Street. Tel: 01-629 1240.

W1. John Lewis, Oxford Street. Tel: 01-629 7711. Tel: 01-629 7711.
WI. Linkys, 42 Tottenham C.
Road. Tel: 01-636 0845.
WI. Lion Hoxae, 227 Tottenh Court Road. Tel: 01-637 1601.
WI. Rother Cameras, 256 Tottenham Court Road. Tel: 01-505 18276. Tel: 01-580 5826. WL The Video Shop, 18 Testenham Court Road. Tel: 01-580 5380. WL Walters Computers, DH Ev Oxford Street. Tel: 01-629 8800 WC1. Transam Micro Systems, 59-61 Theobalds Road.

Tel: 01-405 5240.
WS. Lankys, 18-19 Ealing Broadway Shopping Cents Tel: 01-567 4712. W8. Walters Computers, Barkers Kensington High Street. Tel: 01-937 5432.

let 01/93/ 54.52 SWL Peter Jones, Sicame Squ Tel: 01/730/34/34, SE9, Square Deal, 373-375 Footscray Road, New Etham, Tel: 01/859 1516

Sep. September 19, Road 3173-32 have Tel Of 355 1516. 
Lewisham, Ladyn, 164 High Evertham, Ladyn, 164 High Street, Tel Of 355 164 High Street, Tel Of 355 164 High Street, 164 H The Broadway Southgate.
Tel: 01-882 4942.
NW3, Mayeraft Micros,
58 Rosslyn Hill, Hampstead.
Tel: 01-431 1300.

NW4. Davinci Computer St 112 Brent Street, Hendon. Tel: 01-202 2272. NW7. Computers Inc. 86 Golden Green. Tel: 01-209 0401. NW10. Technomatic, 17 Burnley Road, Wembley. Tel: 01-208 1177.

MANCHESTER Sanchester Boots, 32 Market treet. Tel: 061-832 6533. Manchester Luskys, 61 Arndale Centre. Tel: 061-833 9149.

Manchestes Laskys, 12-14 St Marys Gate. Tel: 061-833 0268 Manchestes Mighty Micro. 268 Wilmslow Road, Fallowfield. Tel: 061-224 8117. Manchester, NSC Comp Shops, 29 Hanging Ditch Tel: 061-832 2269. Oldham, Home & Busins Computers, 54 Yorkshire: Tel: 061-633 1608. Swinton. Mr Micro, 69 Pa Lane. Tel: 061-728 2282

MERSEYSIDE Herwall. Thornguard Herwall. Thornguard Computer Systems, 46 Pensby Road. Tel: 051-342 7516. Liverpool. George Henry Lee. Basnett Street. Tel: 051-709 7070. Liverpool. Hargreaves. 37 Warbreck Moor, Walton. Tel: 051-525 1782.

Liverpool. Laskys, Dale Street. Tel: 051-236-3298. Liverpool. Laskys, St Johns Precinct. Tel: 051-708 5871 Precinct. Tel: 051-708 3871. 5t Helens. Microman Computers. Rainford Industrial Estate, Mill Lane, Rainford. Tel: 0744 885242. Southport. Central Studios. 38 Eastbank Street. Tel: 0704 31881.

MIDDLESEX Enfield. Laskys, 44-48 Pal

Harrow, Camera Arts, 42 St Anna Road, Tel: 01-427 5469. Hounslow, Boots, 193-199 High Street, Tel: 01-570 0156. Erect, Tel: 01-570 0156. exect. id: 01-370 0156. Teddington. Andrews, Broad Street. Tel: 01-977 4716. Twickenham. Twickenham Computer Centre, 72 Heath Road Tel: 01-892 7896. Uxbridge. JKL. Computers, 7 Windsor Street. Tel: 0895 51815.

NORFOLK Norwich, Bonds, All Sain Tel: 0603 24617. NOTTINGHAMSHIRE

Sutton in Ashfield, HN & L Fisher 87 Outram Street, Tel: 0623 54734 Nottingham, Jessops, Victoria Centre, Tel: 0602 418282 Nottingham. Laskys, 1-4 Smiths Row. Tel: 0502 413049. OXFORDSHIRE

OXFORDSHIRE
Abingdon, Ivor Fields Computers,
21 Stert Street. Tel: 0235 21207.
Banbury, Computer Plus,
2 Church Lane, Tel: 0295 55890.
Oxford. Science Studie, 7 Little
Clarenden Street. Tel: 0865 54022. SCOTLAND

Edinburgh, Boots, 101-103 Princes Street, Tel: 031-225 8331. Street. Tel: 031-225 8331. Edinburgh. John Lewis, St Ja Centre. Tel: 031-556 9121. Edinburgh. Laskys, 4 St Jame Centre. Tel: 031-536 1864. Glasgow. Boots, 200 Sauchiehall Street, Tel: 041-332 1925. Glasgow. Boots, Union Street and Angrie Street. Tel: 041-248 7387.

SHROPSHIRE Telford. Telford Electronics, 18 Mail 4. Tel: 0952 504911 STAFFORDSHIRE

Newcastle-under-Lyme.
Computer Cabin, 24 The Paracle,
Silvendale. Tel: 0782 636911.
Stafford. Computerama,
59 Focogate Street. Tel: 0783 41899.
Stoke-on-Trent. Computerama Il Market Square Arcade, Hanley. Tel: 0782 268524.

SUFFOLK Bury St Edmunds. Boots, 11-13 Cornhill. Tel: 0284 701516. Ipswich. Bramusse Micros. 24 Crown Street. Tel: 047 350965. SURREY Croydon.Laskys77-81 North End Tel: 01-681 8443

Tel: 01-681 8443.
Tel: 01-681 8443.
Croydon. The Vision Steec.
96-98 North End. Tel: 01-681 7539.
South Croydon. Concise Computer Consultants, 1 Carls Road. Tel: 01-681 6842. Epsom. The Micro Workshop.

Guildford, Walters Compute Army & Navy, 105-111 High St Tel: 0483 68171. Haslemere, Hasler Computers, 17 Los Tel: 0428 54428.

Icl: 0428 54428. Wallington. Surrey Mis 53 Woodcote Road. Tel: 01-647 5636. Woking, Harpers 71-73 Commercial Way. Tel: 0486 225657.

SUSSEX Bexhill-on-Sea, Comp 22 St Leonards Road, Tel: 0424 223340 Brighton, Boots, 129 North Street Tel: 0273 27088. Brighton, Gamer, 71 East Street Tel: 0273 728681.

Brighton, Laskys, 151-152 Western Read, Tel: 0273 725625 Crawley. Gatwick Computers, 62 The Boulevard, Tel: 0293 37842 Crawley, Laskys, 6-8 Que Tel: 0293 544622. TYNE & WEAR

Newcastle-upon-Tyne. Bainbridge, Eldon Square Tel: 0632 325000. Newcastle upon-Tyne. Boots. Eldon Square. Tel: 0632 329844. Newcastle-upon-Tyne, Laskys. Newcastle-upon-Tyne. RE Computing, 12 Jesmond Road. Tel: 0632 815580.

Aberdare. Inkey Computer Services, 70 Mill Street, The Squ Trecynon. Tel: 0685 881828. Aberystwyth. Aberdata a Galloways, 23 Pier Street. Galloways, 23 Pier Street. Tel: 0970 615522. Cardiff. Boots, 26 Queens Street & 103 Frederick Street.

Cardiff. P & P Computers, 41 The Hayes. Tel: 0222 26666. Swansea. Boots. 17 Sc Marys Arcade, The Quadrant Shopping Centre. Tel: 0792 43461. WARWICKSHIRE Coventry, Coventry Micro Cer

Coventry, JBC Micro Services, 200 Earlscon Avenue, North Earlsdon, Tel: 0203 73813. Coventry, Laskys, Lower Precinct Ed-0203-22712 se: u.s.43 27712. Leamington Spa. IC Computers, 43 Russell Street. Tel: 0926 36244. Leamington Spa. Leamington Hobby Centre, 121 Regent Street. Tel: 0926 29211.

Tel: 0926 29211. Nuneaton, Micro City, la Queens Road.Tel: 0203 382049. Rugby: OEM Computer Systems, 9-11 Regent Street, Tel: 0788 70522 WEST MIDLANDS Birmingham, Boots, City Centre House, Io-17 New Street. Tel: 021-643 7582.

Birmingham, Lask 19-21 Corporation Street. Tel: 021-632-6303. Dudley. Central Computers, 35 Churchill Precinct. Tel: 0384-238109. Stourbridge, Walters Computer Systems, 12 Hagley Road. Tel: 0384 370811. Walsall. New Horizon, 1 Goodall Street. Tel: 0922 24821. West Bromwich. D S Peakman. 7 Queens Square. Tel: 021-5257910

Wolverhampton, Laskys, 2 Wulfrum Square, Tel: 0902 714368. YORKSHIRE Bradford, Boots, 11 Darley Street, Tel: 0274 390891. Tel: 0274 390891.

Leeds. Boots, 19 Albion Arcade

Bond Street Centre.

Sheffield. Cole Brothers, Barkers Pool. Tel: 0742 78511. Sheffield. Laskys, 58 Leopold Street. Tel: 0742 750971.



he somewhat vague documentation that Commodore supplies with its products leaves the field wide open for independent authors. The disk drive manual is a prime example. So it's not surprising that enterprising authors should try to bridge this gap. A brief introduction is followed by a chapter on powering up, although it does not include multiple connection of disk drives and

Chapter two describes the construction of a diskette with the aid of an exploded diagram, and offers good advice about their care and maintenance. Following that. the Basic disk commands LOAD. SAVE and VERIFY are explained in detail, together with pattern matching, and the wedges system supplied on the Demo disk

All the disk maintenance commands are explained, but the examples tend to be no better than those in the original manual, and are so embedded in the general text that they are difficult to identify at a glance. The authors give a warning about using the SAVE and REPLACE option of the SAVE command. They claim that there is a bug which may corrupt the disk (perhaps Tommy could comment on this).

The next three chapters cover Sequential, Random Access and Relative file systems, Error checking and the use of the status variable are introduced with short program examples, as are reading and writing files. A very useful subroutine is given to change floating point numbers into strings to reduce their storage space on

The chapter on Random Access files details the mechanics of reading and writing to specific areas on the disk, and mentions that a Sequential file is required to keep track of the records created. Unfortunately no detail is given on how to create and maintain such a

The remainder of the book contains useful tables of commands, and comprehensive explanations of each error message

Four useful programs are included to display the contents of a Sequential file, unscratching a SCRATCHed file, software write protection of a disk and changing the name and ID of a disk without NEWine it

The book claims to be a simple guide to using your disk drive. It is basically a replacement for the original manual, and goes no further than explaining the workings of the disk. It will not help beginners to design file handling programs.

Ken Ryder

- The Commodore 64 Disk Book by Tony Hetherington and ordon Hamlet
- tury Publications £5.95 lan Sinclair's book represents



The second of our brace of disk books is by lan Sinclair. It is larger than the first, enclosing 114 pages. As a bonus there is also a section on printers. In commor with the previous work the book starts with a description of the hardware and floppies, including

the layout of tracks and sectors. The LOAD, SAVE and VERIFY commands are illustrated with the use of the games disk, currently supplied free with the 1541. No mention is made of the bug reported by Hetherington and Hamlett. A short subroutine to read the error channel is included, together with a useful tip on how to load the disk directory without overwriting the program in

Hexadecimal notation is clearly explained so that you can use the DISPLAY T&S program included on page 49 of the Commodore manual. Backup procedures lead logically to the file handli commands COPY, SCRATCH etc. together with the advantages of

wildcards and pattern matching. The above mentioned games disk contains a BACKUP program, without any documentation! Mr. Sinclair makes up for this deficiency by including instructions to this and the programs listed in the back of the 1541 manual. These gems are

priceless. The concept of files is introduced generally, and concentrates on Serial files specifically. Short subroutines are used to demonstrate reading, and extending a Serial file. Random Access files are relegated to an appendix, but Relative files are covered in depth. Again useful subroutines are listed. The author admits that the routines are only for learning purposes, as a Sequential file is needed to keep track of Relative files. Unlike the first book, the next

chapter carefully and clearly describes a program which creates a simple database. The system uses two Relative and one Serial file. This program may be used as a basis for something more advanced.

The final chapter is devoted to printers, describing the various types available and any interfaces needed. The Epson RX80, Juki 6100, CGP-115 and the now discontinued Commodore 1515 are individually covered. Six appendices conclude the book

This book is for beginn reads easily and explains everything clearly. Unlike the previous book it actually gets down to creating a useful filing system, but if you really need Random files then look aleewhere

Ken Ryder



o write programs that are actually useful and practical is the aim of this short book by Rudolf Smit. And very good it is too

Despite the initial praise, I still feel a calendar on the loo wall and a pad on the hall table is less bother than loading a program into my 64 every time I want to check a birthday or telephone

The real strength of this book is not so much in its programs as in the ways they are planned and written. It is an excellent, readable introduction to structured programming with a short main line sequence and subroutines

at second and third levels. The subroutines are reached through GOSUB commands and RETURN takes the computer back to the mainline ready for the next subroutine. That is the basis of a structured program. It makes for programs that are easy to write and test easy to follow and easy to update, alter and extend

Don't let the apparent complexity fool you, a working knowledge of simple Basic is all that is assumed. How refreshing not to be told how to PRINT "HELLO" yet not be expected to have ready-made expertise in machine code or video chip addresses Down to earth clear practical advice on planning and writing useable programs that work. A welcome addition to any

in-betweener's" bookshelf. George Pike

re 64 Software

77

lictuals. 64 DATAMAKER — COMMODORE 64

Here's a program that converts machine-code into the DATA statements of a Basic loader.

Datamaker is a machine-code program that automatically converts machine-code

into pages of Data statements. Feed in the information (the data will be printed on the screen)

and press Return to enter each line. After typing in the program, Save it (as

usual) as the slightest mistake could crash the machine. The routine is completely relocatable. For example, if your source-program is located at 49152 (\$C000) then

locate the Datamaker at

32768 (\$8000), i.e. change the Poke in line 120 from 53000 to 32768 or anywhere convenient. But remember to lower the top of Basic (Poke 56,32 in this case), otherwise any Basic



1 REM MC-DATAMAKER BY M. C. HART 100 REM C-64 BASIC LOADER 110 : 120 FORJ=0 TO 169:READ X:POKE 53000+J,X:T=T+X:NEXT 130 IFT 24979 THEN FRINT DATA ERROR! ": END

140 END 150 :

160 PEM SYNTAX : SYS(LOCATION)START, END, FIRST-LINE, INCREMENT 170 :

200 DATA32, 159, 173, 32, 247, 183, 133, 252 210 DATA132, 251, 32, 253, 174, 32, 158, 173 220 DATAJ2,247,183,133,254,132,253,32 230 DATA253, 174, 32, 235, 187, 134, 2, 165

240 DATA20, 133, 163, 165, 21, 133, 164, 167 250 DATAO, 133,88,169,147,32,210,255 260 DATA166, 163, 165, 164, 32, 205, 189, 169



HANDIC Software have developed a range of fast action and adventure games, on disk, for the Commodore 64.

O-hop (illustrated here) . . is a game featuring superb colour graphics, joystick action, and some very cute characters. the pyramid of blocks has to be re-coloured in a race against time



DO YOU have the skill to reyour enemies destroy you? or do you want to face the challenges of our other terrific games'

THE 4th SARCOPHAGES Available from your nearest computer dealer or clip the coupon

 SPACE ACTION SPACE TRAP



For scientific and educational use, GRAF 64 is an ideal tool for those who know about equations and their graphs and type in the function or equation GRAF 64 can deal with simple equations like e reformul sections. Once the graph is the option to print the graph or data. Available from your local software dealer or clip the coupon for more information



GRAF 64 is an easy to use studying of complicated equations, functions and their



lict rul

program will overwrite your Datamaker.

The program requires certain information to be able to carry out your wishes. It has to know the Start and End addresses of your machine-code

program. It needs to know the number of the first line you want it to create. and the line increment

(usually 10). This information is contained within a SYS command with the syntax: SYS (the location after the POKE in them in. line 120) Start address. End address, First line number. Line increment (Roturn)

For example, to convert a machine-code program, located at 49152 (\$C000) to 53247 (\$CFFF), to start at line 1000, with an increment of ten, enter

the following: SYS(32768)49152,53247, 1000.10 The program should

produce a full page of Data statements, with a pair of numbers at the bottom. Press the CLR/HOME key (unshifted), and press Return until the cursor sits below the last Data line. This enters the Data

The remaining two numbers indicate the next Start address, and the next line number respectively. Enter them in the next SYS command

as before, until the READY message indicates that all the Data statements have been created.

To turn these Data statements into a proper Basic loader, add the following lines: 10 FOR X=(start

address)TO(end address):READ A:POKE X.A:NEXTX

In line 20, you could insert a SYS command to start the routine, or a message, "PLEASE

WAIT"

270 DATA32, 32, 210, 255, 169, 68, 32, 210 280 DATA255,167,173,32,210,255,160,0 290 DATA132,97,177,251,170,152,32,205 300 DATA189,230,251,208,2,230,252,145 310 DATA254,197,252,208,7,56,165,253 320 DATA229.251,144.61.230,87,165,87 730 DATACO1, 9, 240, 9, 169, 44, 32, 210 350 DATAZ4, 165, 2, 101, 163, 133, 147, 144 360 DATA2,230,164,230,33,165,93,201 370 DATA20,208,165,32,215,170,166,250 790 DATA145,252,32,205,107,147,53,32 JPO DATAZIO, 255, 166, 163, 165, 164, 32, 205



Disk Games

Graf 64

Handic Software, 5, Albert Road, Crowthorne, Berks. RG11 7L7

ictual?

#### SPARKLE - FOR THE

#### HOW TO TYPE IN VICTUALS **UNEXPANDED VIC 20**

We have two methods of presenting listings. When we

When you see	It means	And you	
(CU)	cursorup	presente 'cursor up' key (shifted)	7
[CD]	cursor down	press the 'cursor down' key	1
(CL)	cursor left	press the 'cursor left' key (shifted)	When you see an
[CR]	cuesce right	press the cursor night key	of the codes
[HOM]	cursor to the top lefthand corner	press the HOME	prefixed by a number, you must
[CLS]	cloar	prose the CLR key (shifted)	press the appropriate key
[DEF]	change to insert	presente (NSent kerr (stuffed)	the same number of times.
(BLK)	change to black	press the BLK key (CTRL and 1)	for example:
[WHT]	change to white	press the WHT key (CTRL and 2)	[3SPC]
[RED]	change to red	press the RED key (CTRL and b)	means - press the spacebar three
[CYN]	change to cyan	press the CYN key (CTRL and E)	times
[PUR]	change to purple	press the PURkey (CTRL and 5)	or [SCD]
[GRN]	change to green	press the CRN key (CTSL and fi)	means - press
[BLU]	change to blue	presarbe BLUkey (CTBL and 7)	'cursor down' key five times
[AET]	change to yellow	press the YELkey (CTRLandR)	
[REV]	reverse on	presente RVSON key (CTRL avers)	
(OFF)	reverse off	presente RVSOEF kery (CTRL and 0)	1
SPC)	space	presente space bar repeat the specified number of times	-

#### [G/kev] press specified key together with CBM key [G>key] press specified key together with CRM have

These listings we generally run out on a letter-quality printer, though, and conventional graphics can't be handled on a daisywheel. So some listings are done on a Commodore printer, in which case you may see the

REVERSED HEART)

(REVERSED UNDERSCORE)

PEVERSED SHIFTED .

CURSOR DOWN CURSOR LEFT CURSOR RIGHT	B	(REVERSED 0) (REVERSED UPWARD SAR - SAIFTES HI (REVERSED LEFT SQUARE SPACKET)
(96)	E 18	REVERSED ENTRED P) REVERSED E) REVERSED ENTRED ENTR

THE PURCTION YEARS ONLY BE INCLUDED AND AS NOTH THE STREET HOW-REPROMPTED A VIEW SVINCES IN A LISTING

This little gem (sorry) produces a sparkle effect guaranteed to brighten up any screen

It's quite a clever technique, too: POKEing random numbers into the re-defined graphic area of memory (7168 to 7679) produces the effect reminiscent of explosions or shimmering prizes.

Line 5 defines the graphics, line 10 displays them on the screen. Line 15 performs the sparkle operation, and line 20 sets up an original defined character (the famous 'smiley face').

#### by S. Johnson



5 PRINT"[CLS]":POKE52,23:POKE56,28: CLR:FCRI=7168T07183:READA:FOKEI,A :NEXT:POKE36 869,255

10 FORP=1T050: G=INT(END(1) #505) +7480 : PGKEG, 0: POKEG+30720, 4: NEXT 15 FORT=1T020:FORS=7168T07175:FOKES,

INT (RMD(1) #255) +1: NEXT: NEXT 20 FORS=7168T07175:POKES, PEEK (\$+8) : NEXT

25 POKE36869, 240: END 30 DATA60, 56, 155, 129, 165, 153, 56, 60, 60, 66,165,129,155,153,66,60

READY.



Less than humans, for more than stere computer
The Pythora controlled the acuse Pedd of Institution, When the
order conset, it will cope with determine demand, which would be over
the conset, it will cope with determine demand, which would be over
the computer of the computer of the computer of the computer
to the bottor of the entitled conducted remodeling
the bottor of the entitled conducted remodeling
the bottor of the entitled conducted remodeling
the pedd on the proposal or accompany for it the Pythora ever
goes down.

The Spectrum risp-seler now converted to the Commodore
de and ordered than ever.

PSYTRON

Stunning graphics, animation which makes other programmers gasp, a 20 page booklet of hint tips and help with the discovery of each of six levels of play.

Both formats now available at all good computer game shops









Computer and Video Games, Britain's most popular computer games monthly, bring you two exciting new books for the

Each 100-page book contains up to 30 brand new games checked and prepared by Computer and Video Game's regular contributors.

At £4.99 - the best value on the market at all good bookshops from November or send to EMAP Books, Bushfield House, Orton Centre, Peterborough PE2 0UW. Computerames



Computeramas

## CHALLENGING SOFTWARE

They have manipulated man for tens of thousands of years. Only now are we Only now are we in

A character you can really control, reacting realistically to every twist of the joystick, as he jinks and leaps in and out of his 3D background.

Please send me Psi Warrior (Commodore 64£9.95) From the authors of Psytron (Commodore 64 £7.95) Order Hotline 0858 34567.

Total Enquiries 01-837 2899. Price I enclose a Postal Order/Cheque payable to Beyond, or charge my credit card

Name

Address

Post Code

Please rush me details of the Beyond Club!

Beyond Competition House, Farndon Road, Market Harborough, Leicestershire LE19 9NR

# User-friendly design—Part four Tying up the loose ends

by Chris Preston

In this last article in our series on User-Friendly Design, we are going to consider all the other little' things which go to make up a good program. Little' is in inverted commas because, as you may have noticed, these little' things sometimes take an awful lot of programming — which is why they tend to get neglected.

#### The 'Blank Screen' Syndrome

Never, ever, leave the accreen blank. You should always tell the user that something is happening, even if you don't always sell but her between the something is happening, even if you don't always sell him or her what it is — a user might be quite bappy with "WRITING RECORD TO DISK" but get a little worried about red a little worried about red always and the sell always of "RETRYING FAULTY SEEK OPERATION"; so we tend not to give too much detail about them, even though they happen all the time on any duck drive. Biancally, and the sell always the sell and th

time on any disk drive. Basically, the user just wants some confirmation that the machine is doing something. A little more subtle than the

A little more subtle than the listank Screen Syndrome is the nasty habit of not showing any change on the screen after a key has been pressed. If selecting option 5 on the menu means that the program has to spend five seconds calculating before displaying the result, put a message on the such, put a message on the such as a CALCULATING DEPART-MENTAL TOTALS. Otherwise

mental formation of the wase our impatient operator is going to keep on pressing the '5' button muttering 'Come on you [expletive deleted] machine" and then have to wait for 50 seconds while the obedient computer calculates the totals to time.

Which brings us to our next topic:

#### Don't clear the keyboard queue

On all the Commodore machines there is a keyboard queue which allows the operator to 'type ahead' that is, to enter data on the keyboard faster than the program

Some programmers gleefully put a spanner in the works by



constring the queue every time size program comes to a new menu; which in effect disables this facility. You can argue that this makes it easier for the first-time user to use the program. because he or she doesn't get confused if two kers are pressed by mistake But you should remember that a first-time user is only a first-time user conce: and after our user has got the hang of the program, ne or she may want to rattle off half a dozen keys and then take a mouthful of coffee while the program catches up.

Research into factory working procedures has shown that machine operators are much happier if they can work at their own pace, rather than being tied risidly to the machine's timetable Being able to average 12 pieces per minute is much easier than having to do one every five seconds, even though it may boil down to the same thing in the course of a shift.

## HELP screens The information normally given

on the screen should be enough for a reasonably experienced operator to use the program without any trouble. But there will always be inexperienced users; and anyhow, from time to time everybody comes to a part of the program which is used only once

in a blue moon.

So we need to be able to give people an extra hand. There is always the operator's manual, of course, but that is locked up in the blue filing cabinet and only Maisie has the key and she's off

sick again.

So what can we do? Press 'H'
for Help and hope that the
program was written by a decent
programmer. A proper help
facility should tell the user in
some depth what options are
available at this point in the
program — what exactly they are,
what they do, and so on.

The information would really have to be held on disk or on ROM, as loading 20KB or so of text from cassette would take rather a long time: so I suppose I'll have to releat for programmers running tape

systems on a 3.5KB Vic . . .

#### Menus

A large part of the operation of any program typically consists of telling the program what to do next — "Print a list of all customer names and addresseer". Finter today's invoices" and so on. These 'single key' options are best handled by means of a 'menu' such as the one on page 87.

#### Attention all Commodore 64 owners with a 1541 disk drive

#### MPS TOOLKIT

- Single-drive 3-Pass Disk Backup or individual tracks. \* File Copy - transfer any number of files at once, up to 232 blocks long
- \* Disk Error Locator also checks for proper header.
- DOS, ID's & catalog, with printer optic \* Disk Error Maker - makes 20, 21, 22 & 23 errors.
- necessary for proper backup of protected disks. \* Disk Drive Monitor - address the drive's internal ROM & RAM
- Disk Doctor dozens of uses, read and change sectors, ver lost data \* DOS Changer - Protect your own disks.
- \* Disk Log displays all files on a disk, including start & end address, beginning track and sector, with printer
- \* Loading Address Relocator \*Disk Test
- \* File Recovery \*Compactor
- \* Plus many more useful features!

Beware of imitations! MPS TOOLKIT is the only disk utility for sale in the UK which includes all this at such a low price. Comes complete with instructions is easy to use.

ign orders, please add £1.00 36 ALEXANDRA GROVE, LONDON N4 2LF Telephone: 01-800 3592



#### ZOOMSOFT

Commodore Software Specialists

Title BOULDER DASH		disk	Title		64
BOULDER DASH	8.95	10.95		- 50	71.9
BRISTLES	8.95	10.95	MASTER TYPE	50	32.7
ASRO CHASE	8.95	10.95	MASTER TYPE	DOM:	32.75
FLIP FLOP	8.95	10.95	SPRITE MAKER	9.95	80
THE HULK	9.95	13.95	STRANCED	7.95	N.
FORT APOCALYPSE	9.95	14.95	LETTER WIZARD	NA	34.9
AZTEC CHALLENGE	8.95	12.95	MASK OF THE SUN	NA	26.25
KONG STRIKES BACK	7.90	84			25.75
SUARY	8.35	12.95	SPELL WZWRO	10	34.00
		11.95	B.C'S CLEST FOR TYRES	9.95	34.30
		11.95	SWAG		10.05
DRK III	NA	11.95	SOLDER OF FORTUNE	8.85	N.0
TARCROSS	8/4	11.05	ZAGA MISSION	7.95	9.00
EADLINE	514	11.95	ANT ATTACK	8.95	8.00
NCOUNTER	9.95	12.95	ESPIDALCE	8.95	84
		22.95	MR FORCT	8.95	11.95
AM	5.6	41.95	SPITFRE ACE	9.95	17.90
		12:95	BEACH HEAD	135	12.95
		NA	DALLAS QUEST	9.30	14.96
MATO COMMANDER	9.95	12.95	BRUCE LEE	14.95	
		16.00	KINGHTS OF THE DESERT	14.95	14.95
CLAYMORELE CASTLE	0.05	13.95	COMBAT LEADER	14.95	14.95
POLUE WALLIE	6.95		TIGERS IN THE SNOW	14.95	14.95
DALY THOMPSONS			BATTLE OF NORMANDY	14.95	
DECATHON	7.95		BLUE MAX	14.95	14.95
		NA	MULTIPLAN	9.95	14.95
		85.25	PAINTERUSH	NA	22.25
	N.A.	25.95	PERSONAL ACCOUNTANT	HOM	13.95
DVENTURE CREATOR	ROM	29.95	GRAPHICS RADIC		NA
IL'S WELL	00M	28.95	HOUSEHOLD FINANCE	N/A	25.55
EYOND CASTLE	199.00	49.90	HOUSEHOLD HIMANCE	22.85	NA
WOLFENSTEIN	MA	27.95	1960	16.6	56.25

100's more titles available. Send S.A.E. for free catalogue. Send cheques, P.O. to: Zoomsoft.

46 Huntsworth Mews, London NW1 6DB. Telephone: 01-723 0562

#### **CRASH-OUT problems?** Add a RESET facility.

The STAGSOFT RESET BUTTON and CASSETTE will retrieve your BASIC or M/C code program without power down.

#### RESET BUTTON-

- Simple plug-in to SERIAL I/O PORT
- · Full operating instructions inclu-

- ACCOMPANYING SOFTWARE:
- · provided on C5 tape in library box uses negligible memory
- · each tape has back-up program
- ice loaded, software will Autorun

You can now up-grade your computer by ordering Only £6 inc. P&P. Overseas orders add £1

Send cheque or P.O. with address to: Mundy & Roberts Ltd.. Box No. 11, 5 Crompton Street. Bury, Lancs. BL9 OAA.

#### SELECT ONE OF THE FOLLOWING OPTIONS:

- UPDATE CUSTOMER FILE.
- 2. ENTER INVOICES AND CREDIT NOTES.
- 3. PRINT LIST OF ALL CUSTOMERS.
- 4. PRINT ADDRESS LABELS.
- 5. PRINT CUSTOMER STATEMENTS.
- 5. PRINT CUSTOMER STATEME
- PRODUCE AGED DEBTORS LIST.
   FINISH PROCESSING.
  - PRESS 1-7

#### ......

An Aged Debtors List, by the way is not a hit list for OAPs who don't pay their bills: It's a list of all customers who owe money. It is usually arranged in columns—'I month', '2 months', '3 months'—so that the accounts department can see who the bad payers are.
When the menu is on the screen

When the menu is on the screen the operator has to press only one key in the range 1 to 7 to move on to the next job — using the numeric keys means that the operator does not have to search the keyboard for the "D" key. There are cases when we might use letters, especially "N" and

"Y"; but usually that only applies where we want the operator to stop and think (something you should normally try to discourage). In a large program, there may

he more options than will fit on to one screen. In this case we have to split the system up into a main menu and a number of submenus.

#### Handling disk errors

People are very fond of knocking CP/M is famously enigmatic disk error message "BDOS ERR ON A:". To some extent this is unjustified, after all, what else do you need to know apart from the fact that a disk error has occurred on drive A? Do you really want to know that it is a read verify error on track IS sector 3?

What is unforqivable though is the fact that the user is not given any chance to try again. You may have put an unformatted disk in the drive instead of the correct one, or you might have put it in upside down, or you could simply have forgotten to close the drive door. Many programs suffer from a similar problem. "FILE NOT FOUND", they say, or "WRITE PROTECT ON": and they then just stop! After every dak error the operator should be told what has happened (but don't try to blind the user with science) and give the option of either retrying or abandoning the operation. For instance...

#### CUSTOMER FILE NOT FOUND ON DRIVE 1.

#### PRESS (A) TO ABORT, OR < R

TO BETRY

The operator can now make a choice—whether to give in and press < A>, or put the right disk in the drive and press < A>. Notice that this is a case for using letters; we want the operator to think about what he or she is doing, and there is a danger from pressing the wrong one of two adjacent keys such as '! and '2'.

This is also a case for clearing the keyboard buffer. If the operator has started to enter data beginning with an "A" he is now going to be in trouble! At this point some

programmers will be starting to huff and puff and say, "Well that can't be done in this program because at the point where the problem occurs, the program doesn't know which particular file access caused the error". Or

If that is true, those programmers had better rewrite their programs—because they must be pretty awfull There is no excuse for not being able to recover from an error because of lack of information. All it needs is a decently—written program.



#### Output

The output from a program may be displayed either on the screen or the printer. The same considerations apply to both, so we'll assume that we are talking about printer output.

have a heading at the top of each page saying exactly what the printout is and when it was produced. For example, we may have a program to print out data from our customer file. A page heading saying "CUSTOMER FILE PRINT" is all very well it the program is going to print out all the customers; but if we have a

selective print, which prints out

only customers living in Reading who have expressed an interest in photocopiers; then the page heading (or at least the report heading) should say so.

Otherwise, somebody picking up the printout could assume that all your customers live in the Reading area!

The layout of the data is largely

a matter of common sense. If it is arranged in column format, the column headings should be printed at the top of each page. Numerical data arranged in columns should be formatted so that each figure has the same number of decimal places, and the decimal points should be adigned: (see over)





mentioning specifically is that the report should be tailored to suit the person who is going to read it. machine turning out widgets, the want reports on product quality

production targets. If 20 per cent of his production is faulty, then he is going to have to get his maintenance staff to look into the problem.

The planning department on the other hand needs reports on - the cost of the raw materials used, cost of the electricity used, of producing a widget and so set

But although the planning department wants to know the production data, the production manager shouldn't get a report figures.

Summing up

A quick summary of the most

important points. Notice that many of them have reservations the "this" right without falling foul of the "that

- 1. Make life as easy for the operator as possible. Don't assume that he is as good a typist as you, or knows as
- 2. Give the operator as many options as possible, so that he can make his own mind up about how he does his job, but don't offer unneccesary information
- which could confuse him. 3. Let the operator know that the machine is still working. Certainly never leave him with the dreaded blank
- 4. Validate all input immediately and tell the operator straight away if he has made a mistake. 5. Make the program as easy to use for a first-time user, but. even more important, don't hold up an experienced
- operator. 6. Don't force the operator to enter information which you defaults for data fields (possibly based on earlier input) so that the operator can just press < RETURN > to accept them if

they are correct. Now go to it and right some



Master :

WANT IT TOMORROW? \*\*\* CALL US TODAY! \*\*\* ON D1-546-725

£10.50

612 50

£28.95

£14.95

£37.95

£14.99

29.95

£49.95

£44.95

£44 95

£14.95

£46 95

€95.00

€89.95

€89.95

630.00

£30.00

630.00

£59.95/64.95

£59/95/64.95

Dr. Watson Basic Course (Honeyfold) t Dr. Watson Assembly Course (Honeyfold) t. Assembler Development Pack (Commodore) d. Mastercode Assembler (Sunshine) t MON64 (Handic) r. Programmers Utilities (Commodore) d. Programmers Ref. Guide (Commodore) Book LOGO (Commodore) d CPM (Commodore) r & d. Simons Basic (Commodore) r. Petspeed 64 Basic Compiler (Commodore) d. Calc Result Easy (Handic) r Calc Result Advanced (Handic) r & d. Superbase 64 (Precision) d.

Magpie (Audiogenic) d & r. DFM Database & Labels (Dialog) t/d Transact, Book-keeping (Dialog) t/d. Invostat, Invoice & Statements (Dialog) t/d. Cashbook & VAT Accounts (Gemini) t/d Final Accounts (Gemini) t/d.

t = Tape d = Disk r = Cartridge (Send a SAE for a list of our full range)

#### PLUS - THE PRICE YOU SEE IS ALL YOU PAY

\* FREEPOST (no stamp needed) for ordering \* FREE postage, packaging and insurance

ACT NOW, by sending cheque or postal order to:

PLUS FREEPOST, BLETCHLEY, MILTON KEYNES, MK3 TEF

## BUSINESS

for Commodore 8032/8096 and 64

#### PAYROLL

Hourly, weekly and monthly basic. Trates for overtime or piecework, four pre-tax adjustments, including pension contributions and S.S.P. seven after tax adjustments, N.I. and all tax codes for use with printed paysips or plain paper. This payroll can be adjusted by the user when tax rates change.

INTEGRATED ACCOUNTS FROM £299.50 + VAT Purchase ledger with aged creditors, sales ledger with invoicing on forms to the user's own design, statements, aged debtors, etc. day books, Val. analysis, stock control, automatic posting to the nominal ledger with manual override, nominal regression of the property of the property of management reports, profit and loss and balance steet. Able to read payioff life.

Write or phone for details and complete software list

#### **ELECTRONIC AIDS**

(TEWKESBURY) LTD
12 Drysdale Close, Wickhamford
Evesham, Worcestershire WR11 6RZ
Telephone: (0386) 831020



#### Why buy two when one will do?

The INFRASCOPE COMMUNICATOR II is an electronic typewriter AND a computer printer

#### ALL IN ONE

- \* RS232 Compatible KSR and Parallel RO interface
- \* Approved interface for the SCM 1100 Typewriter
- Interface cables available for BBC/B, Commodore 64, Sinclair QL, Spectrum, or virtually any other micro computer with an RS232 or Centronics interface
- \* Choice of 2 or 8K character buffer

#### ALL THIS FOR ONLY £458 Incl. VAT & Delivery (Interface Cable Extra) VISA/ACCESS accepted



The new KSR COMMUNICATOR II is now available for immediate despatch. Using the popular Smith Corona EC 1100 typewriter we have created a high quality computer printer by fitting our new INFRASCOPE interface.

But don't take our word for it, write or phone for our free comprehensive data sheet

INFRASCOPE LIMITED
Longbeck Road, Marske, REDCAR, Cleveland TS11 6HQ.
Telephone 0642 470121



Competitive Prices

Light Pen CBM 64 or Vic 20

Absolutely the best....see opposite-100% fast machine code Featuring:-Freehand draw, Nib size, Get, Save, Load, Print, Lock X, Lock Y and 10

Supplied on tape transferable to disk

£28.00

Stack Light Rifle



£19.95

A unique game system for Vic 20 or CBM 64. Load one of the three games included and shoot the cowboys, rats convicts etc on your T.V. from up to 10ft away. Complete full colour and sound

#### **CBM 64** Compiler

Turns your normal basic programs into very fast machine language like code.

Disk based £9.95

#### 4 SLOT Motherboard VIC 20 & CBM 64

A high quality switchcable expansion unit with gold slots enabling up to 4 compatible cartridges or RAM packs to be inserted and turner

on or off at will.

£28.00

#### CENTRONICS INTERFACE VIC 20/CBM 64

A very high quality strengthened Simplywrite, Wordcraft and many others (but not all).

£24.00

#### RS 232 C INTERFACE CBM 64/VIC 20

A full Bi-directional interface D-type male connector Special cable service available

£33.00

ARROW PLUS

£24.00

#### IFFF-488 VIC 20/ **CBM 64**

This cartridge provides the standard CBM connector an

enables all 3000, 4000 and 8000 series disk drives and printe to work with the Vic 20 or CBM 64. Supports normal CBM 64

£30.00

## ARROW C64

£16.00

AUTOFIRE ADAPTOR

CBM 64/VIC 20 £3.25

ZAP - PROOF **IOYSTICK** 

£7.95

## HELP C64

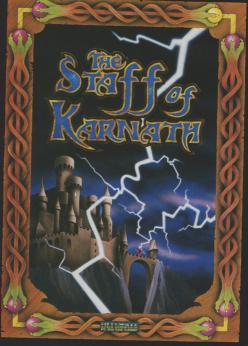
£15.00

SUPER HELP C64

£25.00

COMPUTER PRODUCTS

## **COMMODORE 64** (Joystick Compatible)



"THE STAFF OF KARNATH" recommended retail price £9.95 inc VAT
Available from W.H.SMITHS, BOOTS, J.MENZIES, WOOLWORTHS
and all good software retail outlets. Also available from
ULTIMATE PLAY THE GAME, The Green, Ashby-de-la-Zouch, Leicestershire LE6 5JU
(P&T included) Tei. 0550 411485

## A STAB IN THE BACK FOR **BASIC?**

#### An alternative language to Basic and machine code by Andrew Collin

STAB is a programming language originally developed at Strathclyde University. One of its offshoots, STAB-1, is a language specially written for small computers. It's not only portable but it provides the ease-of-use of Basic with the speed of machine-code, STAB enthusiast Andrew Collin, who recently set up Talent Computer Systems, introduces the language and explains why Talent is using it to write games and utilities for the Commodore 64. You can't acquire it, though, for your own 64 - but that could change if there were enough demand.

won't need to be told how hard it is to program. If you're writing a small, simple program, Basic will serve you well; but as soon as you start on anything complicated, or try to use the graphics and sound facilities on your machine, Basic just gives up. You're left with a mess of PEEKs, POKEs and machine code routines which take ages to get right; and even then, your program won't run as fast as

What's the secret? The wise old men of computing (actually they tell you that their programs are written in '100% machine code'. It's true that a machine code program knows no restrictions about what it can and can't do, and is a genuine way of getting the best performance from a computer; but have you ever tried writing a large program in machine code? There's so much painstaking detail to worry about, and so many pitfalls for careless mistakes, that the whole process is a return to slavery. Computers are supposed to get rid of mindless drudgery.

The solution to the problem is obvious once it's pointed out. We need a high-level language (that is, one which allows expressions, variable names, subroutines, loop structures and so on) which also gives you full control of the computer and is capable of running as fast as machine code, and they would still run just as fast. Since you could now afford to throw away bad bits of program and rewrite them, your final product I they have been doing research on programs split naturally into pro-



ight even be better than if you programming methods for a had managed to write it in 100% machine code

There are lots of computer languages around. The best-known ones apart from Basic are Fortran, Cobol, Lisp, Pascal and Prolog. Unfortunately these languages frame computers. They don't give you full control over the machine, and some of them run very slowly (even on mainframes). The choice

When Talent Computer System puter software market, we faced Department of Computer Science same thing in Basic. at Strathclyde University, where Another feature of STAB is that

number of years. One of their products is STAB-1, a computer language specially written for small machines. This language is portable, which means that you can easily run it on any computer you like.

#### Looking at STAB

What is STAB-1 like? At first glance, it's quite similar to Pascal. for micros is much more You can call your variables anything you like, and the names have limited scopes-which is the Comdecided to enter the home com- puter Scientist's way of saying that the names only have any meaning this problem in acute form. We over a restricted part of the prohad lots of ideas for new products, gram. This fact helps enormously but -like other software with building large programs, becompanies—we were a bit light on cause two or more modules can be geniuses to turn them into finished stuck together without worrying products. Fortunately we had about the fatal name clashes which

cedures, each of which does one simple, well-defined job. The procedures talk to each other through a system of arguments or parameters, a bit like the user-defined functions in Basic. The key difference is that in STAB the procedures aren't limited to one line but can be as long as you like. A procedure can call another procedure. It can even call itself, which lets you use recursion.

Also, STAB is especially well adapted to handling peripherals. The way it does this is very simple One of the 'data types' in STAB is called CHARVEC. That's not complicated, it's just like an array in Basic, except that each element is a character (or a byte) rather than a number. There's no limit to the length of a charvec, and it's guite easy to declare a charvec which covers the whole address space of the Commodore 64. You can then refer to any peripheral register just by using the right subscript

#### Procedures with STAB

To give an example, consider the following section of code, which copies some character definitions into the RAM at address 12288. The Basic instructions are taken from the Commodore 64 Programmer's Reference Guide,

- 20 POKE 56334. PEEK(56334) AND 254
- 30 POKE 1, PEEK(1) AND 251 40 FOR I=0 TO 511: POKE I+
- 12288, PEEK(I+53248): NEXT 50 POKE 1, PEEK(1) OR 4 60 POKE 56334, PEEK(56344)



The corresponding bit of STAB-1 might beroutine copychars charvec source charvec destination

let i.pr=.56334 [ memlpr and .254 -> memlpr mem! 1 and .251 -> mem!1

do i = 0(1).511 mem!(source + i) -> mem!(destination + i)memil or 4 -> memil

memipr or 1 -> memipr

This is an example of a procedure. | So far we've tried to convince you mentioned that decimal numbers are preceded with a full stop, numbers are assumed to be in the scale of 8). The shriekmark is a subscript operator, so that memlq means roughly the same as MEM(Q) in Basic. Finally, -> means "assign". Assignment statements are written the logically correct way-work out the expression on the left, and then put it into the address on the right. Most people would say that STAB assignments are written backwards. but then most people have been brought up on illogical languages!

The procedure does nothing by self. When called, it will move 512 characters between any two places as defined by the parameters source and destination. If you actually want the characters to be copied from 53248 to 12288, you would write a routine call like copychars(.53248..12288).

The second way that STAB helps you control the machine is the provision for handling interrupts. You can write your program to include a special routine or network of routines; and you can arrange for that routine to be called automatically every time an interrupt occurs-for any reason. There is no need to write any machine code at To give you a little more of the

flavour of the language, here's a complete program to calculate may be and print prime numbers, using the method of Eratosthenes' sieve: pretation has huge advantages for

It might help to understand it if we that STAB is a better language for writing large programs than Basic. The trouble is, you'd need a large example to prove the point! It's worth mentioning that all of Talent's products are written in STAB, and they tend to be between 1500 and 2500 lines long. Most lines contain more than one

#### Running speed

What about speed of execution? The most elegant and sophisti- grams in Basic tend to be cated language is useless if the programs just crawl along. To memory space is given over to explain how STAB programs storing them. manage to run so quickly, I'd like to begin by reminding you of the difference between interpretation interpreter has to analyse every and compilation

The Basic which comes with so that in the loo your Commodore 64 is interpre- 10 FOR Q=1 TO 1000 tive. This means that as you type in 20 A=A+1/Qyour program, it's put away in the 30 NEXT Q memory character by character, with only a few concessions to obeyed 1000 times, it's also space like abbreviated keywords. analysed 1000 times; and of course computer obeys your program same each time round. This makes statement by statement. In every interpretation very slow, and the case it begins by analysing the computer creeps along at about 1 command, working out what it per cent of its true potential speed. means and making sure that there are no errors. Only when the is compilation. Here the program meaning is clear does the is analysed once and for all, and computer actually obey the translated into assembly code becommand by adding numbers, displaying a string or whatever it

Despite the snail's pace, inter-

BE:Erase 80:Drag	EA: Find area	
BC:Copy BM:Mark MH:Mirror() MU:Mirror()	FI Fill inve	ture R:R-band our C:Circle erse EL:Ellipse ture Z:Erase
SELECT 0:Backgro 1:Foregro HTSCELLANE PR:Save an	DEFINE DI Textur DC Colour OUS	POINTS (etc) .:Plot -:Texture -:Colour I:Text I:Inverse texture
MI Hipe sk	etch (lear	SP:Points

the machine, and you can list it and change it whenever you like. Another advantage is that procompact, so that not much On the other hand, these benefits don't come free. The

statement every time it is obeyed.

the command at line 20 is not only When you finally say RUN, the the results of the analysis are the hardly any room in the me The alternative to interpretation fore it is run. The major advantage is that it will now run at a speed much nearer to that of machine code (not full machine code because computer-based translators - compilers as they are

called - are not as clever as human coders). The corresponding disadvantages are many. First, the translated version tends to be bulkier, to take up more memory space than the original version of the program. Second, the compiler is a complicated program, and it is difficult to shoe-horn it into a computer like the 64. (It can be done, but it would run rather slowly.) Third, program development isn't so easy because the whole program has to be retranslated if any of it is changed.

Compile or interpret?

Which is best, interpretation or pilation? There is no simple

developing and testing programs. I answer. Clearly, some parts of the The original program is always in program you are writing have to program you are writing have to run as fast as possible to keep up with the outside world. Other parts, such as those which display screens or writing or accept typed input, have no special requirement for speed. It takes a normal person several seconds to read a screen, so it doesn't matter whether the screen appears in 1/1000 or 1/10 of a second. STAB-1 lets you mix interpreta-

tion and compilation in the same program. When you write your program, you can choose the procedures to be translated into machine code so that they run fast. The others are interpreted and run more slowly, but then they take up Would you like to get a STAR.1 compiler/interpreter for your Commodore 64? I'm afraid you can't, unless you've got a WICAT microcomputer. The STAB compiler has never actually been transferred to the 64. Instead, Talent does all its program development on the WICAT, a powerful machine with 256K of memory and a 68000 microprocessor - not the kind of machine you keep in your living

Programs are written and tested on the WICAT. At a later stage, they are sent down communication lines for final testing in the 64 itself or any other home computer. Let's summarise. STAB-1 lets you write large programs which run fast and give you easy control over the hardware of the machine. Furthermore, STAB programs can be tuned so as to get the best trade-offs between space and speed, and it is easy to get the same program running on several different micros. It all sounds pretty useful. As we said earlier, STAB is not available to people who have only the Commodore 64. But this could change if there

were enough demand!

† Prime numbers by Eratosthenes' sieve charvec s(.5000) routine pr X † Display value of x if x > 0 then [pr(x/.10):printch(x rem .10+0)]

routine main let j.k 12 ->

while | < .2500 repeat [ if sli = 0 then [ 2\*j ->k

while k < .5000 repeat [1 -> sik; k+j -> k]1+1->1

Now print out numbers where the elements of the sieve are still 0 do (=2(1) 4999 ( if stj = 0 then (pr(j); printch/\*L') ]

#### For High End C64 Users

Introductory Offer

#### NLY £ 69

Limited to orders received between now and january 31, 1985

- Print your letters with professional quality and speed.
- · See your program listings printed as you wrote them · Get a 70 second screen dump in HiRes
- · Print multicolor in grey shades
- . For Epson, Star and other 8 dot matrix printers

#### Multi Function C 64/SX 64 Printer Interface

Manufactures

x 16 x 2 cm W x D x H (cone)

rinters son FX 80, Star Gemini 10.3 equivalent variety

Interfaces Power requirements

distriction to distriction. Per definition of the distriction of the d

 Sher's promote is readily readable on top cover of housing BK buffer, optional at time of order ladditional US \$ 29 -, £ 29.95)
Auditence halds HRSS Picture or several pages of taxet (in preparation) word program.

#### Turn your COMMODORE Plus/4 into a comprehensive business system with

COMPANY PAC 1\*2\*3°

The complete business accounting system that's simplicity itself to use. Think how it could help you in your business.

£98.95 + VAT

· Payments & Credits Suppliers Details/Rec

Multi Form Facilit

 Customer Details/Reports Up to 550 Accounts per disk

STOCK CONTROL Percent Profit Report

Profit & Loss Account • Balance Sheet • Help Menu • Total Balance Company PAC 1.2-3. The complete suite of business programs special

developed to make your Commodore Plus/4 the ideal small business micro. For just §£113.80 (inc Post & Packing & VAT) you could simplify and speed up your routine paperwork as have hundreds of satisfied users. Ring 01-900 0999 now quoting your Access/visa number or send your order to the address below. Dealer enquiries welcome

IMPEX SOFTWARE LTD.



#### MusiCalo MUSICALC | Synthesiser & Sequencer MTISICALC 2 Scorewriter (Requires CBM 1525 or Epson Printer) MUSICALC 3 Keyboard maker Template 1 (Latin) Template 2 (Rock) Beat File (Drums) SPECIAL/ all the above €160 SPECIAL/ MUSICALC 1, 2 and 3 MUSICALC demo disk [refundable] MUSICALC demo tape (audio) [refundable] TOTALS prices include VAT and UK P&P. Add overseas postage of £1 00 per item TOTAL ENCLOSED

Mail your order with your payment to: MusiCalc UK, The Metropolitan, Enfield Road, London N1 SAZ

NAME:

Tick here if you'd like to go on our mailing list for future MusiCalc announcements

Kolh

## The Forth Dimension: Programming with a DIY Language Part 4 — all about structures

by Richard G Hunt

In the previous articles in this series I have discussed briefly one of Forth's most useful structural words [DO...LOOP]. Together with [IF...ELSE...THEN] and [BEGIN] these words are the cement that binds the building blocks to provide style and form. Without them, to extend the metaphor, Forth is a house of straw!

Structure is important in any language, not least Forth. Structured programming simplistically a buzz-phrase for thinking it out and getting it right first time — is imposed on the Forth programmer by the language. There are three very programming:

- Each operation is sequential. Conditional operations allow branching according to the state of conditional flags execution of xxx where condition is true, yyy if false,
- and zzz after xxx or yyy. Repetitive operations execute xxx continually until or while a condition yyy is true, when execution proceeds to zzz.

Rule 1 is supported by any system. programming language. This is how they apply to Forth.

#### IF...ELSE THEN

The full syntax of the Forth conditional is: (Condition) IF (execute true words) ELSE (execute false words) THEN (continue). As with most languages the ELSE part is optional. It is of course the stack that causes the order of the components. A value for comparison must be on the stack first for comparison to take place. Consider the following

:GETANS . "DO YOU WANT ANOTHER GAME? (Y/N)" KEY 89=IF STARTPROG ELSE QUIT THEN :

The word expects ASCII 89 ("Y") 96 to be pressed in order to call the

word that runs the game otherwise QUIT is called which returns control to the keyboard Note that any value other than "Y" ends the game, thus capturing wrong keystrokes. The dyadic (that means a set of two) relational operator '= 'takes two values from the stack and leaves a flag which is

[1] if the condition is true or '0' if false. IF takes the flag and causes branching to the appropriate code depending on which flag is present. It follows that IF can be used only within a colon definition. (This applies equally to DO and BEGIN below.) The IF structure is a frequent and powerful statement. It is possible to nest IF's like this:

:MENU (input from keyboard) 1 = if proglelse 2 = if prog2 else 3 = if prog3 else 4 = if prog4 else 5 = if prog5 else guit then

then then then then: This is possibly not as neat as a CASE structure (as in Pascal) but if you are that concerned. Forth

which work similarly: [<]less than [>] areater than [0=] and [0<] both compare with 0

Other operators seemingly missing must be defined: : NOT 0= : (reverses truth of flag)

: < > = not; : <=> not: :>=< not; :0>0< not:

This is perhaps the most comm of Forth's repetitive structures. I have hinted at how it works in earlier articles and since example is an excellent teacher, here are some ways to use DO...LOOP:

TEST cr 8 1 do 8 1 do j i \* 3 .r loop cr loop : 2TEST cr 6 1 do 6 1 do j 1 \* 1 \* 4.r loop cr loop; : 3TEST cr 6 1 do 6 1 do ji \* ji

\*\*4.r loop cr loop : : 4TEST cr 5 1 do 5 1 do j i \* dup \*\* 5 .r loop cr loop ; These are examples of how to create vectors and matrices in a

very simplified way. It cannot compare with the conciseness of with care it can cater for most normal requirements. And few would deny that it's also much more readable! The loop limits used are suitable for the Vic's 22-column screen and may be made larger for the 64. Try to work out what each example does before you enter it, remembering that T fetches the loop counter from the top of the return stack. and T the next inner loop counter from the second position on the return stack. Finally on DO loops, supports other relative operators end by using LEAVE, once a given

#### condition is filled. The BEGIN structure

- BEGIN (execute Forth words true condition) UNTIL
- BEGIN (true condition) WHILE (execute Forth words)

#### BEGIN (execute Forth words)

AGAIN The first option allows the choice of determining branches out of a loop at a given circumstance, that is when a specific condition becomes true. In a game, a BEGIN loop may determine the continuous running of the

program at the highest level: : RUN BEGIN PLAY DEAD

PLAY would invoke all the lower level words that make the game, while DEAD would keep track of the score or number of lives used and so on. Now try this example. You'll see that ?TERMINAL tests

#### for the RUN/STOP key : STEST BEGIN . "HELLO" ?TERMINAL UNTIL:

The second option allows the reverse condition to be determined. In this case the loop repeats (at REPEAT) as long as the condition remains true, or conversely when the condition becomes false. As a theoretical example this form could be used to count loops and repeat while, say, the count were less than a given

#### STEST REGIN STERMINAL NOT WHILE . "HELLO" REPEAT:

The last option permits contin looping unless the words QUIT or ABORT are met. Try using this: : 7TEST BEGIN ."HELLO" ?TERMINAL IF QUIT THEN AGAIN .

The next article will cover mainly input of numbers and strings and will conclude with a little exercise to practise what I have preached these last few months.

Learning To Cope is an annua Computing with five years' experience in the field issue of Learning To Cope deals with all aspects of computers in special education.

hardware and special aids designed and and mentally handicapped children

and adults. The progress made with microelectronic devices helps create independence for all who use them.

A large proportion of Learning To Cope is dedicated to software, with a catalogue listing all the specially designed programs for children and adults with specific needs. It also includes a comprehensive software reviews teaching and learning aids across a wide range of subjects. Computer applications are illustrated through case studies covering such topics as computers and the blind and how computers can help to stimulate mentally handicapped children.

Learning To Cope is the only publication which deals in depth with computers in special education. It offers practical advice and guidance as well as pages of useful information and contacts. It is something you cannot afford to miss if you are at all connected with the teaching of children and adults with special educational needs.

#### \_\_\_\_\_\_ Please send me a copy of Learning To Cope

Computers in Special Education.

I enclose a cheque/postal order made payable to Discounts are available on bulk orders — contact the editorial office on 01-251 6222 ext. 2475.

Position\_ Establishment. Address

irprise! There's a surprise in store in every issue of

Computer & Video Games magazine. Every month you'll find great games listings for your computer, reviews of the latest software. The Top 30 Chart. The Bugs. Arcade Action. competitions and many more fun surprises. At your newsagent on the 16th of every month.

## University Software

## UNISTAT

STATISTICAL PACKAGE

MULTIVARIATE REGRESSION: Main output consists of estimated coefficients.

ANALYSIS OF VARIANCE, SCATTER DIAGRAMS AND TIME SERIES PLOTS: One-way and two way (without interaction) ANOVA tables, scatter diagrams of paired

STATISTICAL TESTS, CORRELATION COEFFICIENTS AND PROBABILITY DIS-TRIBUTIONS: Basic stats on each column of data (size-siam, mean, surrance sof-des.) U. and Wilcown signed rank tests. Pearson's Spearman's rank and Kendall's rank corr

DESCRIPTIVE STATISTICS, FREQUENCY DISTRIBUTIONS AND HISTOGRAMS. OES for FEE STANDARD, FREQUENCY OURS. Raw data sorred and grouped Analysis of raw data or data with frequency ourse. Raw data sorred and grouped Cherce of lower bounds and class intervals. Absolute, cumulative and relative

All programs are datable compatible with Matrix Operations program in UNIMAX All programs are datasee computative with statem experiments program in UNASSEC, package. Data matrix expects examples (columns by nows). CBM-64; 2x1750, 5x200, 10x300, BBC-8; 2x750, 5x200, 10x00, 10x00, 1 (disk-cass) DSS, BBC-B (disk-cass) DSS, DSK Spectrum (mily-carticless) E60

## UNIMAX

LINEAR PROGRAMMING PACKAGE

LINEAR PROGRAMMING: A powerful and instructive optimisation program capable Examples by constraints). CBM-64; 10x35, 25x30, 40x25, BBC-B; 10x25, 20x20, 48K Spectrum, 10x45, 25x35, 50x

MATRIX OPERATIONS: Inversion, transposition, determinant, pre- and post-Any output can in turn be used as the input of the next operation without re-typic Name of came in term recursed as one input of the force operation without it syping. Mannest came be sented or leaded at any stage. Datafile compatible, with UNISTAT package. Capacities. CBM-64; 35x35. BBC-B; 25x35. 488 Spectrum; 45x45. CBM-64 (drsk-czss): £60, BBC-B (drsk-czss): £60, 48K Spectrum (mdscart/czss): £45.

ALSO AVAILABLE FOR 48K SPECTRUM INTRODUCTION TO ECONOMICS SET: £25 ECONOMIC GEOGRAPHY: £9.95 · BIBLIOFILE: £9.95 POLYNOMIALS £6.95 • INTEGRATION £6.95

To: UNISOFT LIMITED (Dept. CU) 29 ST PETER'S STREET, LONDON NI 8JP.

TEL: 01-359 0978 Prices include VAT and delivery within the UK. For orders from Europe add £1 50, outside Europe £3 00 per item for airmail post. Dealers enquiries welcome



#### COMMODORE 64. BBC-B, 48K SPECTRUM

\* Comprehensive user manual \* Full data handling facilities (display, print, change, save, load)

\* All results can be printed out \*



6.95

8.95

9.95

## ASSEMBLER 64. Professional development tool. Full assembler disassembler allowing LABELS, VARIABLES, PSEUDO OPS and CONTROL COM

DATABASE 64. Menu driven database Max 20000 records, 255 bytes/re-cord, 15 fields record. CREATE database ADD, INSERT, DELETE, AMEND records. SEARCH for records on any field including wild card matchings?"; LOAD SAVE databases to tape disk. SCROLL through database. 11139 £24.95 Proctifile 637.00 629.00

£10.95 All prices disk SAE full catalogue (over 100 programs, including databases, word proc

DYNAMITE SOFTWARE DEPTCE | Free Assembler 64 or game with BCM 8713 LONDON WC1N 3XX | every order over £15. Disk or tape.

Koala Pad

#### COMMODORE 64 AND VIC 20

Tape Back-up Board For the Commodore 64 and the Vic 20. When a secape unit is connected to the board it will make personal security copies of all types Tape lain is conserved to the constitution and the constitution of tape software. Price 8.50 plus 50p pbp UK (Europe add 11, Ensewhere add 62). An optional reset switch can also be fined for only 62.00 entra inclusion. COMMODORE 64 DISK DRIVE UTILITIES 1541 Disk Management A menu driven 20 function disk management unlity. Fea-

tres include edit track sector, dask back up, protect unprotect programs plus en arced and normal disk commands. User friendly. Five programs on one disk at only 1541 PRG/SEQ Utility Multi-part programs which includes a single PRG/SEQ file

Both programs are supplied with a comprehensive booklet \*\*\* special offer \*\*\* order both programs and get a tape to disk unliny absolutely free on disk: (Weeth 15 86 offer ends 31/1/85). For Europe add 75p, elsewhere add £1.50. Send cheque POs or

Clark Kent Software, 15, Bamburgh Close, Corby, Northamptonshire NN18 9PA.

#### COMMODORE 64 OWNERS Tape to Disk Transfer Utility This program will place on disk a working

copy of at least 90% of all (normal speed) programs. Full disk error copy of as least surve of all finding speed programs. Full disk error handling. Directory utilities, including access to disk directory from within program. This is the best available. Tape £8.95 Disk £10.95 Disk Backup Makes complete track and sector copies of any disk using

single 1541 disk drive. Disk £10.95 Tape Backup Produces security backup of most existing tape software. Tape £3.95

Bank Manager Keeps full details of bank account on tape or disk, including automatically actioning standing orders etc. With a budgeting facility and a security code entry. Full disk commands within program. A superb, flexible and easy to use program. Tape £8.95 Disk £10.95 Money back guarantee if not delighted. All prices inclusive of VAT and P&P

Wishbone Software Dept CUA, 8 Rye Close, North Walsham, Norwich, Norfolk

For the best in high quality softwa

#### COMMODORE 64 TOP TEN PROGRAMS 1/2 PRICE!

Decathlon Daley Thompson Raid Over Moscow Trollie Wallie Jump Challenge Strip Poker

9.99 Bumble Bee 7.90 9.95 7.00 7.95 9.95

Ant Attack 3D Zaxxon 15.00 BC Basic Catalogue (enclose sae)

HOW?

Buy them, try them, return them within one month - half your money back! Send cheques/P.O. to:

C&S COMPUTER SERVICES 144 Sutcliffe Avenue, Grimsby, South Humberside DN33 1AP



Now that we've all broken into our piggy banks to buy our nearest and dearest even more spectacular Christmas presents than last year, ardent Adventurers will be keen to revive those flagging savings. What better than to solve an adventure and win a fortune into the bargain? You could win £25,000 by solving Eurekal or win a diamond by cracking the secret of Commodore's new Secret of the Stones

I have a suspicion that there are software snobs in just the same way as there are those cinema freaks who talk about film and then, only if it can be viewed in a 20-seat art theatre and portrays black-and-white documentaries of the peasant struggle in nineteenth century Albania, (with Danish sub-

They are probably more numerous among adventure gamers, too. They're up until three in the morning waiting for just one turn at Mud and strongly hold the view that Philip Mitchell should be canonised (if such a thing is possible in the case of an Australian – let alone advisable). They keep meticulous notes

and maps, of all the adventures they play. To use HELP even once is to risk immediate excommunication from this elfin

And when it comes to buying new software, they're even more critical and cynical than the sub-teens I see scanning the racks in W H Smith on a Saturday morning. They are especially wary of the hyped us of what happens when softtitle - much preferring the single-figure camaraderie of a game that only seven other people will ever buy. But are they always right to be po-

featured in the face of pizzaz? a little too slick, a mite too Livingstone and the talented discovering the phone number glossy, for the game itself to be Hungarians in Andromeda's that you must be the first to ring





Eureka - good adventure or just good hype?

are always the headstones of Imagine and Rabbit to remind Caesar The Cat. Given that the prize element almost instantly. ware advertising is consisis obviously important, review-

But in the case of Eurekal at least, any such suspicions must be quickly dispelled. Its pedig-Eureka! is a case in point. ree helps. This 250K text and in some subtle respects from Roman segment, for example, Wasn't there a danger that the graphics skirmish with prehisclever teaser ads followed by toric Europe, Roman Italy, Celenticing full-colour pages of tic Britain, war-time Germany clout and the promise of a and the modern-day Carib-£25,000 prize would be seen as bean is the work of Ian and which offers more clues to

tently better than the products

taken seriously? After all, there | stable who brought such a refreshing look to games like pictures which can thus be

ers were provided, at most,

with only two of the five sec-

tions which comprise the game

prised if even these didn't vary

the public versions. Also unav-

to claim that £25,000. Even so, the sample more

than testifies to the quality and excellence of Eureka! Putting to one side the prospect of a glittering prize - because the game must surely be judged on its intrinsic merits - Eureka! is well-furnished with challenges which are sometimes encouragingly easy - at other times, very testing.

But responses are fast and logical, and so even if your progress is brought to an abrupt halt in the path of a runaway horse or in the hull of a sinking slave ship, you should be able to figure out where you went wrong and be back on the track (or lava path, or Appian Way, or wherever) fairly soon.

The graphics are a stroke of near-genius. Instead of using hi-res screens with text windows (with all the attendant limitations), the Andromeda team have used multicoloured and multi-layered sprites to create smaller but brillianth coloured and highly-detailed stored, displayed and changed

Many incorporate animated elements to add extra interest. The overall enjoyment heightened by full use of the - and I wouldn't be at all sur- 64's sound potential. The marvellously strident music in the reminded me of those 1950s allable at the time was the col- epics in which Victor Mature ourful booklet containing addi- used to fight a lion with one

tional riddles and illustrations hand and a gladiator with the

verture

other while saving most of his energy for Gina Lollobrigida. So Eureka! is that rare thing - a hugely-hyped game that actually does live up to the promises of its advertising.

#### A spy from beyond

Those of us old enough to have been young enough (if you know what I mean) to be anarchic, even before the era of Monty Python, will greet with nostalgic delight the news that Antonia Prohias's duelling, wedge-nosed secret agents from the pages of Mad are to feature in Spy vs Spy from Beyond Software.

I had my wrists slapped by Beyond's Clive Bailey for daring to suggest that it might be categorised as an arcade adventure; it is an 'animated cartoon strategy game' ... I think he said. And as with that other well-known game of strategy, two can play, it should keep the joystick manufacturers happy

What do you do for an encore with one mega hit under your belt? You don't necessarily hit another vein of gold the second time around - as Melbourne House discovered after title have been adequate but hardly outstanding. again, you don't hack out that quality of program over a long weekend, and indeed it is almost wondrous that Philip Mitchell has polished off Sherlock as quickly as he has.

#### Sherlock homes in

Sherlock is almost a pure text adventure, though there are some graphics along the way. The real appeal of the game is the intelligence of the parser routines, which build on the facility for third-person communication and inter-action first seen in The Hobbit to an extent that will impress even Zorkists. Incidentally, it used to be only infocom who were any good at producing supporting documentation; indeed, but the 18-page booklet that comes with Sherlock improves even on that standard. By the way, don't make the

mistake (as a friend did) of put-

ting to one side the timetables

and other scraps which come

weights. If you're on the right lines (hint! hint!) you should find a use for them all

Players of Aztec Tomb from Alligata can testify to the fact that this early effort by Tony Crowther gave little hint of his latent talents, which were to eventually surface in Loco and Suicide Express. Pretty brave of Alligata, then, to use the title Aztec Tomb Revisited (£7.95.

£11.95 disk) for their latest adventure. Even more courageous, perhaps, of Mr Micro to promise a new graphic adventure every fortnight on Compunet, coming soon. The games will be linked, and users will be able to download them onto disk from the Software Park pages. Meanwhile



Eureka - travel through time to win £25,000

like the idea of adding a multiplayer, interactive game as a Compunet rival to Mud - originally run on Essex University's DEC 10 computer and recently acquired by Century Communications for relaunch later this year.

Two adventures of very different calibre are included in Select One - the compilation cassette of 12 games for the 64 selling at £12.49. Sadly, Ring of Power, originally published by Quicksilva at £9.95, has about as much appeal as a day-old pot noodle. It is supposed to be a graphic adventure, but all you see are crudse sprite representations of various objects

or, if you type PICTURE (though the original inlay never told you this), you can call up a view of three walls marked with N, S, E or W to indicate legitimate exits. I legitimately exited after only a few minutes of disbelief

#### Denis the micro-menace

Denis Through The Looking Glass is something else again; a Quill-generated text adventure in which the PM's hubby must thwart everyone and evwith the game, thinking them to erything in the way of satisfy-

only amusing make- | ing his legendary (?) propen- | querade for the computer litersity for a quick snorter. It is inoffensively entertaining and almost compensates for the inadequacies of its bedfellow in this collection. Or you can buy it separately from Applications

Software at £5.50. The brace of new graphic adventures from Audiogenic at £5.95 are - if you'll pardon the extended metaphor - a bit of a curate's egg. In Time Traveller, you're off to wrest the magic hourglass from the evil Graf von unpronounceable with the assistance of 1990s technology (which is like 1980s technology - only the quarantee has run out). In The Magic Stone, the scenario has you searching for the all-night al-

chemist and the means of turn-

Commodore are also said to | ing lead into gold; machine coders attempting to convert Spectrum games for the 64 will be familiar with the challen Both adventures accept the usual verb/noun pairs plus

single-letter inputs for frequently used commands. The graphics are not at all bad. ere are some nice puzzles, and the HELP option is, if anything, a little too obliging. Still the fact that I didn't speed along suggests that the full game will in each case provide even fairly experienced adventures with a few hours of contemplation

A few more than they might expect, in fact. This is because. apparently, neither Time Traveller nor The Magic Stone has a SAVE facility. Together with the fact that both titles take around ten minutes to load, this time to console yourself with the thought that there are Koala Pad outfits for the first three players of each adventure to declare the most expeditious

## Spirit of Commodore

Prizes of even more sparkle are your incentive in Spirit of The Stones, a kind of Mas-

ate which marks Commodore's first substantial original title in the genre. For your £14.95 you

get a large-format book packed with full-colour illustrations, in which author John Worsley tells the tale of a fortune in diamonds hidden on the Isle of Wight. By reading the tions, and by exploring the 21 locations-cum-games which feature in the accompanying software, you should be on your way to discovering and claiming one or more of the 40 diamond talismen offered as prizes - and possibly the even more valuable Great Wight

Rotter still. Commodore have established a royalty fund which will grow by 50p with every copy of the game purchased. So successful claimants not only get to keep the diamonds but will have at least one share out of the 50 available in the fund's total when it closes. That will be when all 41 talismen have been claimed, when the fund has reached £1 million, or in December 1993 whichever happens first

All clever stuff - and very fair, too; especially since you can claim by post and don't actually have to dig up the treasures. But for a concept that aspires to Williamesque sophistication - and certainly has an up-market price tag - Spirit falls a little flat when it comes to the games element. Co-author Ian Gray seems more at home with graphic adventures, such as his goodly Heroes of Karn, than with the tedious and samey arcaders he's devised here. They're a little too difficult for the younger player and conventional adventurer to bother mastering

Yet I've played (worse still bought!) poorer efforts, and its two-score chances of winning a rock plus a share of perhaps £1 million might just give Spirit a place in the charts that it wouldn't otherwise deserve.

And finally, since characters from the past have figured pretty strongly in this month's column, can you deduce what (or who) Sherlock Holmes and the Goons had in common? First correct answer out of the hat - on a postcard, please, by Friday, 1st February - wins a mint fastload cassette of Storm Warrior - Front Runner's feature-packed 12-screen arcade adventure and a classic of its type.

## Canyou afford to write for anyone else?



#### Leaders in Computer Games require programs and programmers

 Original game programs for the Spectrum or Commodore 64 are urgently required-Arcade, Strategy or Adventure. We pay top royalties or tailor a contract to suit your needs – WorldWide sales ensure the best possible deal.

 Programmers to work in 280 or 6502 assembly language for contract work or translation coding – best rewards.



Write or phone in confidence to: Software Development, Ocean House, 6 Central Street, Manchester M2 5NS, 061-832 6633.

#### PCN REVIEW NOV 83

"The facilities for setting selection criteria ... are impressive"

"It represents very good value for money"

"... particularly easy to use" NOW EVEN BETTER!



Database Management System

as sortal most series

\*SIMPLY FILE' DBMS
THE PRACTICAL FILE SYSTEM
PET 2000-8000 £65 + VAT
CBM 64 (DISK) £60 + VAT
Send for details of other
programs and free newsletter

Simple Software Ltd 15 Havelock Rd Brighton Sussex BN1 6GL Tel (0273) 504879



#### **★★ MOONRAKER ★★**

\* NEW ARCADE GAME FOR \*

THE COMMODORE 64, PLUS JOYSTICK

Test your skills - are you the BEST or one of the rest?

Enter codename into the Moonraker Patrol Log and FLY your sub-orbital craft around the planetoid Geevor into a 3D fly-into space scenario over an extensive lunar-type landscape.

DEFY the 'Fireball', DEFEAT the Scavengers, and GAIN PROMOTION through the ranks of the ELITE MOONRAKER Patrol.

#### \*\* MOONRAKER - FANTASTIC VALUE at £6.95 \*\*

also for the Commodore 64

Budget Price -

@ £5.95 ★

@ £5.95 ★

Writing your own programs? RENIMBER, APPEND & DELETE — satisfyingly simple — Your "BASIC" essentials at a "BASIC" essentials at

so easy - aids

animation! GADGET 64

\*\*\* FREE C10 cassette for your own programs \*\*\*

with all mail orders for SPRI-TECH or GADGET 64

You like our Software & Budget Prices – Tell your friends! Order Now, send your Name, Address & Order Title, enclose P/O or Cheque for full amount and post to:

J&J Gilmour Ltd, Dept CU185, 4 Copse Close, Liss, Hampshire GU33 7EW, England

#### NOW A DEALS FOR READERS PRODUCT

## MusiCac What the papers said

f MusiCalc is a program which will stretch your SID chip to it's limits. It is a synthesiser which makes my monophonic synthesiser look like a barrel-organ.

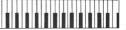
...would even have the BBC radiophonic boys drooling.

f This is an excellent product and a good synthesiser

#### YOUR COMMODORE Dec 84.

6 The attractions of the software go way beyond sound quality. It is for a start super friendly – and it has the versatility to make it a genuinely useful compositional tool for the experienced and adventurous musicians.

WHAT KEYBOARD Nov 84.



#### DON'T JUST PLAY GAMES!

## **EDUCATIONAL** SOFTWARE

#### forthe VIC-20 UNEXPANDED

Physics Biology Maths

Computer Studies Science Maths Mathematics

Arithmetic Reasoning Knowledge

O level/CSE Revision Aid O Level/CSE Revision Aid CSE Revision O Level/CSE Revision Aid Revision 12/14 Years Revision 12/14 Years

Revision 8/11 Years Revision 7/10 Years 11+ Revision Quiz 9/99 Years

Exceptional value at just £4.95 each post free

#### Immediate delivery by first class post NO EXPANSION RAM NEEDED

Cheques PO to Micro-De-Bug Consultancy Dept CU, 60 Sir John's Road Selly Park, Birmingham, B297ER Tel: 021 472 7610

DEALER ENQUIRIES WELCOME

## NOW A DEALS FOR READERS PRODUCT More from the press

f There is no doubt that these Musicalc programs provide the most comprehensive exploitation of the 64's music generating capabilities. 3

#### COMMODORE USER Nov 84.

Musicalc is an incredibly powerful system ... Even the briefest listen will win you over.

#### COMMODORE HORIZONS Dec 84.

If music is your interest - I recommend you get a demonstration of MusiCalc

#### READING EVENING POST.

To do just that visit: Chromasonic; Pilot Software - Rathbone Place: Tomorrow's World Today - Oxford Street: Microland -Waterlooville; Gamer - Brighton; Peterborough Computers; Ton World - Hull; The London Rock Shop; Soft Shop - Chalfost. Or ask your nodore dealer or POST THE COUPON OVERLEAF



OUR PRICE £39-95 £88.00

Master 64 TO MED ! OUR PROTE COOKS (239.45 [35.95 MO HORE... ALL FOR ONLY 164,951

VIZAWRITE 64

PERMITTE 64

DE 64'S CRORE, GRANGS ÎND HYBRITIST VERTICAL PROPRIET VERTICAL PROPRIET VERTICAL PROPRIET VERTICAL PROPRIET PROPRIET VERTICAL PROPRIET PRO I IS BE ILTIMATE PERSONS COMMITTER MORE PROCESSOR! AND ANCE ON (199-25 180) OR NOT PERSONS (199-25 180) OR NOT PERSONS (199-25 180)



#### **COMMODORE 64 OWNERS**

#### MIDLAND COMPUTER LIBRARY

The First & Largest Commodore Library in the World (often copied but never equalled)

- 1 All the latest titles very two weeks
- 2 Hire your first two games absolutely free up to £2 in value
- 3 Life membership f6
- 4 Hire charge from only £1 inc p&p for full 7 days
- 5 No limit to the amount of games you can hire
- 6 All games originals with full documentation 7 Games, Business and Educational software
- 8 Return of post service guaranteed
- 9 Lowest new hard and software prices in the UK
- 10 Join now on 14 day money back guarantee
- 11 Over 1,000 games in stock inc. many US imports

#### MIDLAND COMPUTER LIBRARY 31 Evenlode Close, Lodge Park

Redditch B98 7NA Telephone 0527 23584







## **ACCOUNTING FOR YOUR SINS**

#### A layman's encounter with Commodore 64 accounts software

#### by Karl Dallas

Most owners of small businesses or the self-employed shudder at the very thought of accounts; producing them is probably the most leathed chore of the business year. It's now possible for businessmen to do their accounts properly and relatively cheaply with a Commodore 64 and appropriate software. And here lies the problem. If accounting jargon leaves you cold (and it does for most of us), learning to use that accounting software may be yet another problem to contend with Karl Dallas finds out how Geminis' Cashbook plus VAT, and Dialog's Transact and Invostar packages shape up to solving his financial problems.

As a self-employed financial idiot, who got into computers mainly because I can't add two and two without getting the square root of minus one, the hardest chore of my year is the preparation of my accounts. And since HM Government devised that kind of torture known as Value Added Tax, it's become a quarterly problem, too.

In fact, when I bought my first 8K Pet back in the Seventies, I must confess that it was financial number crunching I had in mind rather than word processing, spreadsheets and databases which is what keeps it busies now.

I've looked at some of the really powerful business packages, and they impress me mightliy. But, frankly, the manuals assume so much prior knowledge of accountancy jargon (did you know Aged Debtors aren't really old aged pensioners?) and the procedures of single entry journal transactions, whereby cash recieved may be entered as credit to the sales account, but a debit to the cash acsales account, but a debit to the cash account, making the whole thing harder to understand than reverse Polish notation, that they frighten me right away.

Until now, therefore, I've been doing my accounts on a spreadsheet. Every item is entered, its VAT calculated, and at the end of the month I've got a complete summary of what's been going on from which my accountant can prepare something the Inland Revenue and HM Customs and Excise will find accept.

With the increased use of low-priced but powerful machines like the 64, however, it's become possible for businessmen to get into doing their own accounts properly. And the software doesn't cost hundreds of pounds, any more, either.

So I approached the accounts packages from Gemini and Dialog in ignorance and with trepidation, and though I ended up preferring one to the other, I won't be surprised if the professionals say I'm wrong. My fellow financial idiots may agree with me, however.

#### Installation

Both programs are available on disk or tape, and of course the disk version is quicker to LOAD. Gemini charge £5 extra for the disk version of their Cashbook and VAT package, costing £64.98.1 had them on disk, but Gemini's manual says their program takes about eight minutes to LOAD from tape.

The Gemini program doesn't include an invoice generator, but it does have a special VAT utility, VAT file, aimed specifically at people who are on the special retailers' scheme. This would become very valuable if, as seems possible, the Government starts to levy different rates of VAT for different products.

On the other hand, Dialog's bookkeeping system is called Transact. It costs £30 on disk, and you can pay £30 extra for the accompanying Invostat in-





voice and statement generator. I have my own invoice forms stored on disk as sord processed pages, so I could live without the invoice generator, especially since it doesn't integrate with Transact.

I have this dream of one day typing in

one set of information when I pay out for something or (more rarely) receive a payment, and have all the rest of the work done for me, but that day hasn't come yet.

Obviously, if you don't road inventor.

Obviously, if you don't need Invostat, then just buying Dialog's Transact package could save you a lot of money.

#### Comparisons

When you start running the Gemini program, you're presented with a ready-formulated system into which you can start inputing data right away, with a very comprehensive late of 199 nominal account codes and titles, raturing with Sales of 199 nominal account codes and titles, raturing with Sales of 199 nominal account codes and titles, raturing with Sales (b) and ending with Director's Doan Acchanged, and there are just under 100 blank codes. If no titles are entered in these codes, then they are skipped while the systems in running.

There is a set of codes for limited companies, and an alternative set for sole traders or partnerships. Obviously, both would not be required at the same time. Gemini gives a useful list of the complete set of codes in the manual.

In comparison, Dialog offer only 90 codes (probably adequate for most small businesses), and the first ten are preset as 'control accounts' to monitor the bank, cash, debtors, creditors, output and input VAT, VAT clearance etc.

The rest you have to sort out for yourself. I must confess I found the Gemini list useful in helping ne work out what I might need, but a few minutes' careful thought would probably help you work it out on your own.

Once you get into recording transactions, the distinctions between the two programs becomes obvious.

The Gemini program is much more tightly structured, with certain account codes restricted to receipts, others to payments, and some to both. On the other hand, I was amazed to find it didn't calculate the VAT on each individual transaction.

I asked the Gemini people about this, and David Petriks, who helped to devise it, told me that they had been advised to do it this way by the Customs, though they might have preferred to have included automatic calculation. The problem, of course, arises if you have a mixture of taxed and sero-tasted sums, or if there is more than one rate. Certainly, one of the reasons why I

wear a wrist-watch calculator is so that I can always work out how to derive the tax from the gross sum (by dividing by 7.666667, since you ask), when I am sending out invoices, because my WP

program doesn't have a calculator, either. It's a little irritating, but I can live with it. Dialog, however, does give you the option of automatic VAT calculation.

After transactions have been completed, and verified, they are SAVEd to disk or tape as data files. Both programs have specimen files on disk, but of course in practice you would SAVE new files to a newly-formatted disk as soon as you started working the system.

Gemini point out, rather alarmingly, that if you should overwrite the data on the program disk, if lb e impossible to run the program. I tried backing it up (I always try backing up my program disks, even though it rarely works on the 64), but it didn't work. Oh for the days of dongles!

One of the things I preferred about the Dialog program was that it came with a small demonstration data file, which enables the first-time user to check out how it works. Genini claimed that their data file could also be used for demo purposes, but there was no documentation about how this could be done.

#### Printing

Dialog provide no information on printer configurations, and there is no facility for setting up any printer. On the other hand, printing is well documented by Gemini, who specify an 80-column printer and have a 'configure' option allowing the page length, discontinuous paging, ASCII code for the £ sign, and device

number to be altered.

The name of the company is defined while configuring the printer, surprisingly, though of course it could be incorporated in the data file name, eg "Any-companyatata".

Several options require the printer to be attached, and in fact Germin assume a hard-copy print out before shut-down (a good practice). Dialog was very unforqiving if you chose a print option by mistake without having the printer connected and will END with a device not present error.

Typing CONT gives a 'Can't continue' error, and if you GOTO 0 (the ML routine opening call), the program will run again, but you've lost all the data in memory.

In fact, Gemini advise keeping the printer connected and turned on before you even RUN the program. If an interface, Interpod for example, is connected, then that should be configured before the program is RUN. TOTAL TOTAL

Gemini's nominal account summary



Monthly expense summary on Gemini

#### Documentation

Neither program is particularly well documented. Both have A5 booklets, the Gemini of 24 pages, the Dialog of 20.

The manual for Gernini's VAT file' says specifically that 'this package is not intended to be a guide to the workings of Value Added Tax' and Td say that a careful browse through any standard book-keeping tutor would be necessary to enable you to get the most out of either system. Finally, both manuals have ex-

FOR Gemini: powerful, limited printer configuration possible

AGAINST Gemini: no automatic calculation of VAT on each transaction

FOR Dialog: easy for the beginner to get started

AGAINST Dialog: less powerful, no printer documentation

RAT

27

HP

CHECKER

Har

IIF

ERY

HARE

TO THE WISE

tensive appendices of printed examples, which are very helpful.

#### Conclusions

In plumping for the Dialog package, you may realise that I have some fears that. in the long run, and after I've studied the requisite books from my local library, I might wish I'd chosen the Gemini

It's unlikely that you'd be able to use the same data file format, if you did decide to upgrade. But I'm still going to stick to my instinct.

Even if I'm right in suspecting that more careful study of the Gemini package would be well worth while, life's too short. I'm not an accountant, after all, and while I'm still hoping for that elusive pot of gold at the end of the next rainbow, I'm fairly confident that I'm hardly likely to see my business expanding so much and so fast that Transact would act as a brake on further development.

But if you're starting up, have big expansion plans, and have the time to get things right first time, then take a look at Gemini. It may cost twice the money, but I suspect that it's worth it, in the long run.



Accounts summary on Transact

# MAKE THE MOST OF YOUR COMPUTER.

## INTERFACE



- ☐ Mastering Machine Code on your Commodore 64 £7.95 ☐ Mastering the Commodore 64
- £7.95 ☐ Challenging Games for the Commodore 64
- £3.95 ☐ Putting your Commodore 64 to Work (15 programs including a complete word processor)
  Chris Callender. 64 95
- ☐ Putting your VIC 20 to Work £4.95
- ☐ 50 Outstanding Programs for the VIC 20 £6.95
- ☐ Delving Deeper into your VIC 20 £4.95
- Dynamic Games for your VIC 20 £4.95
- ☐ Creating Adventure Programs on your Computer €4.95
- ☐ The Art of Structured Programming £5.95
- ☐ The Easy Way to Program your New Computer
- £3.95 ☐ Getting Acquainted with your VIC 20
- £6.95 ☐ How to Program the Commodore 64 65 95
- These books are available from most book and computer stores. In case of difficulty, order directly from us.

Interface Publications, Dept. QCU, 9-11 Kensington High Street, London W8 5NP.

Please send me the indicated books. I enclose £

Address \_

**INTERFACE** PUBLICATIONS

We're the Experts.

## The natural development for Commodore 64 users

Unlock the full potential of your disk-based Commodore 64, use Superbase 64 - the complete records - handling system that puts business-style power and practicality at your fingertips.

Superbase 64 solves a host of filing problems with its easy record formatting, powerful indexing and sorting, extensive outputting options, and its 'Superbasic' programming capability.

- - Car Fi

 The complete information control system for the Commodore 64 includes a simple-to-follow manual.

Complete your Commodore 64 - Complete the coupon More information on Superbase 64 is available from Com-Dealers, Major Retailers or from Precision Software direct From the authors of Easy Script. --------Please send me more information on Superbase 64 Tel

Address Age\_ Occupation Precision Software Ltd. 6 Park Terrace. Worcester Park, Surrey, KT4 7JZ Tel: 01-330 7166 Telex: 8955021 Precision PRECIS G Software -



## Write away

#### Adventure nut

I am writing to you from Sydney Australia. I am a recrular reader of your excellent magazine and I have found it very helpful in assisting me to learn more about my Commodore 64. Even though the advertisements aren't any good over here. I still love to read the articles

I am a crazed adventure game addict and currently have two games that I am hopelessly stuck on. Perhaps you or some of your readers could give me some help. The first one is "Heroes of Karn" How in heaven's name does one kill the pirate, and what will kill or disable the serpent? Secondly, is "The Secret of Barstow Manor", I'm in the stone cell and can go no further Help!

#### M Stuckey, 601 Marampo Street, Marayong 2148, NSW,

Can any Karn or Secret solvers put this Antipodean Adventurer on the right track?

#### ZX Printerface tip

I am sure that some Vic users have the Softex Computers interface which connects the Vic-20 to the ZX printer and would welcome some information regarding it. Whilst writing a machine-code screen dump for the set-up, I discovered that the Printerface soft-

ware uses locations 251 and 254 while printing. Thus, I had to find some other zero page locations for my program to use. I have found that locations 97-102 and 105-110 can be used temporarily. Also ZX printer users will have

noticed that, sometimes, the device will print illegibly. This has a very simple cure. Just feed some paper through before doing any printing and after tearing any paper off. M J Davies, The Waverley, 79

Rhosmaen Street, Llandeib, Dyfed, Wales.

#### Teach-vourself Victuals

First off may I point out that I'm rather new to the world of computers and I'm still finding my way around the programs. However I must point out that your magazine is just what's wanted for someone

starting up with computers It's not full of very advanced programs, not over filled with advertisements (as some magazines are), it gives us a very good magazine that covers a wide slice of computing.

I Have now found the one magazine I want out of the hundreds that find their way on to the

gents' shelves Commodon User is a must if you wish to get to grips with your 64 or Vic-20

The only thing I would ask for is some small programs that are of an educational kind to be added to the the excuse, "It's for my children". Maths, spelling, Highway-code -Green Cross code - anything as long as it's of use for the children.

If you have any readers out there at may be able to help I would like to hear from them. Keep up the

#### L A Hutchings, PO Box 48, Derby DE6 6OP As you probably know, there's

write it and send it ...

an increasing amount of good and cheap educational software now available for the Commodore 64 (we've reviewing a huge batch in this issue). We don't publish educational Victuals for the simple reason that we rarely receive any. It's up to you to

#### Help for the handicapped

I enjoyed reading my first copy of Commodore User. Can I suggest that you allow one page for your magazine to tackle the problems of the mentally and physically handicapped Commodore user? There is a drastic need for up-to-date information in the highly specialised field, both from teachers of the metally handicapped and parents,

My son is a 81/2 years old Downs Syndrome child. He copes well with the Commodore keyboard. but finds that most games on the market are too sophisticated for him to master. He requires programs which build up very slowly as his thought patterns and reac-

tions are slower.

I urgently require a list of suppliers of suitable software. Can you help? Looking forward to hear-

#### H Forsyth, 10 Balgibbon Drive, Callander, Perthshire FK17

Worthwhile suggestions of this kind are always welcome. Trouble is, we don't really know how many mentally or physically handicapped users of Commodore computers there are out there. We need you to rite in and tell us. Meanwhile, can any software suppliers offer any suggestions

to Helen Forsyth?

## A SUPERB DESIGN TOOL

CADPACK-64 is a superb tool for computer-aided designs and drawings. Graphics Drawings are done directly onto the

high resolution screen using a light pen CADPACK-64 can create and edit graphics pictures, drawings, layouts, and renderings - quickly, accurately and artistically. The output is suitable for reproduction as

hardcopy printout or photographs. CADPACK-64 is a snap to use! The main menu lets you choose from a full list of options simply by selecting one with the light pen. Your interaction with the keyboard is min-



ADAMSOFT **UK Distributer** 

m- 62 E . c2 Pythagoras says--c<sup>2</sup>-a<sup>2</sup>+8<sup>2</sup> STUEN RC-RC Software demont. 101 0786-524384

CADPACK-64 gives you two full high resolution screens. You can draw with any combination of LINEs, BOXes, CIRCLEs and ELLIPSEs; FILL using patterns or solid colours: free hand DRAW: COPY sections of the screen to other sections of the screen. You can choose point placement down to the pixel level by using the floating vernier. The ZOOM feature lets you do detailed design within a

small section of the screen. CADPACK-64 runs on a Commodore 64 with 1541 disk drive and requires a high quality light pen. A printer is optional.

CADPACK-64 makes design work with a Commodore 64 so very easy. We challenge you to try one of the most useful design tools available at any price for a home computer

CADPACK-64 w/comprehensive manual on DISK \$35.00 CADPAK-64 is now available complete with lightpen at ......£49.95 CADPACK-64 has a powerful OB-JECT EDITOR which lets you define the shape of OBJECTs such as furniture, electronic circuitry or machinery. These definitions can be as intricate as the resolution of the screen permits. You can name these OBJECTs, build a library of them on disk, and then recall and display them on the screen at varying SCALEings or ROTATIONs. When your designs are complete, you can SAVE/RECALL finished screens to/from the disk. Finally you can reproduce the results to one of popular dot matrix printers: Commodore 1525E, MPS-801, Epson MX, RX or FX series, Okidata C, Itoh Prowriter, Star Gemini.



Send sae for full catalogue Dealer enquiries welcome - No surcharge on overseas orders

Transcash payments to a/c no: 687944007

Abacus and Software

#### OWERFUL UTILIT THE BEST RANGE OF UTILITIES FOR THE 64. WRITTEN BY PROFESSIONALS—SOLD BY PROFESSIONALS

#### DISCO

#### Two important NEW programs

Speed up your 1541 disc drive with loads most programs at more than

double the normal speed. A flexible of fast loading on your own discs. Also cludes a file exchanger for programs put or isc with "Disco" [THE tape to disc utility] ONLY £11.95

programs. Includes "Fastcopy" ta write a whole disc "Error copy"

song the very source of the so

includes hardware and software True amazing new cassette port adaptor allo und 100% successful

brand new machine copy onto one deci-ONLY £12.95 ONLY £9.95

ROCKET Fed up waiting for programs to

ng by about 8 times while Does not affect the speed estem to reload indepen-ONLY 67.95 THE TAPE TO DISCUTLITY
We quarantee that the other best ery easy to use no program knowledge grams auto load and run once red and can also be made to fastload with Quickdisc Handy

ONLY 69.95 BIGMOUTH The superb new speech synthesis program for the '64 mand. Very easy to use. Can be

incorporated into your basic pro-grams. Words are entered in phonetic English, ie. spelt as they unlimited Great fun and ONLY 67.95

TAPER

A powerful utility. Works

ONLY 629.95 DISCS S.S.D.D. BOX OF TEN ONLY £5-95

takes just four by automocran

ONLY \$14.95 3M SCOTCH £16.00 LIFETIME

> MICRO CENTRE IDGE STREET, EVESHAM

MICRO CENTRE 1756 PERSHORE ROAD, COTTERIDGE, BIRMINGHA Tel: 021-458 4564



very reasonably priced.

AND FOR THE REALLY BROAD-MINDED

LOVE

ADULT FORFFITS AND REWARDS GAME WITH ARCADE ACTION "POSITIVELY THE NAUGHTIEST THING YOUR CBM 64 EVER DID 64 ONLY: TAPE £5.95 (OVER 18's ONLY)

CHEQUE OR POSTAL ORDER TO

HARBOUR SOFTWARE 134 EAST WEARE ROAD, PORTLAND, DORSET Tel: (0305) 820487

DEALER ENQUIRIES INVITED

#### THIS IS A PLUG FOR... THE CENTRONICS PRINTER INTERFACE PLUS CABLE

VIC20 & CBM 64 VERSIONS SIMPLE TO INSTALL AND USE PRINT OR LIST FROM BASIC OR MACHINE CODE CARTRIDGE-BASED ... SAVES RAM

JUST £4299 INC MAIL PO/CHEQUES TO: G4G MICRO SERVICES

63 PORTLAND ROAD BIRMINGHAM B16 9HS

BROTHER M1009 ONLY £199

HIGH QUALITY PRINTER AT LOW

PRICE 9 x 9 dot-matrix, 80 col, 50

cps, 96 chars and over 100 other

chars. Enlarged, condensed, italic.

super & sub-script and more. Friction feed, tractor option.

EPSON RX80FT £299

€369

Seikosha GP700A

## 4-F-5 Vic 20 & 64

#### COMPUTERS

SAY YES FOR COMMODORE HARDWARE, SOFTWARE & PERIPHERALS

VORK SHIPE ELECTRONICS SERVICES LIMITED

Caxton House 17, Fountain Street Morley, West Yorkshire Tel: 0532-522181

#### PRINTER BARGAINS FOR VIC-20 AND CBM64

SEIKOSHA GP100VC ONLY £149 MADE FOR THE COMMODORE EXCLUSIVELY 6 x 7 dot-matrix, 80

col. 30 cps, 154 chars inc Commodore graphics. Graphic, Double width & Standard Tractor feed SPECIAL OFFER UNTIL 25th IAN

Shinwa CPARO Daisy Step 2000

£258 €299 Smith Corona TP-1 ....

Cannon PW1080A ..... £229 Mannesmann Tally MT80 ... £255 Payments to: STECNE COMPLIER SYSTEMS Bryn Cottage, Peniel, Carmarthen, Dyfed Tel: 0267 231246 for further details

Designed and written by us for Commodore the COMMODORE MUSIC MAKER

A must for your Commodore 64 this Christmas \* Turns your Commodore 64 into a Musical keyboard

\* Complete with 'piano type' keyboard which fits onto the computer \* Songbook and music tutor book \* Play popular tunes even though you've never played before

\* Imitate sounds of dozens of instruments Compose your own tunes and play with added accompaniment

and rhythms \* Disk or cassette available All this for only £29.95. Our opening offer includes free extra songbook. We are the 64 specialists. Send SAE for software & peripherals list. Free P&P on

items over £10 Access Bar :lavcard M.K. MUSIC AND COMP JTERS 17 BRIDGE STREET - LEIGHTON BUZZ. RD - BEDFORDSHIRE TEL: 0525 37662:

#### Commodore 64 + Vic-20 Club

Trade supplied with full games and business software for all Commodore machines

All original software - business and games. New releases for CBM64 every two weeks Send your name and address to go onto our mailing list

M. J. Seaward St Olafs Road, Hill Head, Stratton, nr Bude,

Corpwall

Telephone: Bude 4179

#### COMMODORE 64 DATABASE DATAFILE

re, load, copy, alphanumeric sort, user defined fields, memory between limits searches etc. Fully Menu driven with comprehensive

Outstanding value:- cassette £7.45, disk £10.25 fast delivery by first class mail. Send cheque/postal order to: A+C Software, Dept 3, 75 Oakthorpe Gardens.

Tividale, West Midlands B69 2LF

#### When it saves you Time, it saves you Money... which adds up to a great add-on!

Simply fit the CP NUMERIC KEYPAD to your CBM64 or Vic-20 and forget it.

Always ready to use NO SOFTWARE REQUIRED

Compatible with all commercial software. Leave all ports free. Essential for the

serious user because TIME IS MONEY, AND THAT'S WHAT COUNTS!

Please send cheques/PO, Commercial Products 11 Hylands Close Furnace Green

Crawley, Sussex RH10 6RX

includes RETURN key ONLY

£29.95 inc VAT & P&P

ASSEMBLER 64. Professional development tool. Full assembler disas-DATABASE 64. Menu driven database. Max 30000 records, 255 bytes cord, 15 fields record. CREATE database. ADD, INSERT, DELETE, AMEND

£24.95 Practifile £24.95 Stock Control £24.95 Cafe Easy Result

All prices disk. SAE full catalogue topver 100 programs, including databases, word processors.

DYNAMITE SOFTWARE Free Assembler 64 or game with BCM 8713 LONDON WC1N 3XX



## It's a fair cop?

### The Sentinel burglar alarm reviewed

Last month I briefly touched on the subject of home security when I covered possible uses for the input board. Micro-Security, who hail from Hampshire, have gone a stage further and actually produced a system that lets you turn your Commodore 64 or Use-20 into a burglar alarm, complete with window sensors, pressure mats, alarm bells and cables. It can also act as a control system, turning devices on and off at preset times.

#### Security system components

The complete Sentinel security system consists of the Sentinel interface unit, the control program on tape or disk, an external alarm with weatherprod enclosure, internal buzzer, ten magnetic contact switches, a pressure mat, a panic button, two junction boxes and 50m of cable plus citys; everything you need to set up your own burglar alarm system. The cost is \$900.0 exel VAT. Comparable to many similar self-contained alarm systems.

As with any DIY security system, the first thing to do is to install all the various components of the system; wiring up the windows and doors with the magnetic contact switches, setting the pressure mat in front of valuable items or at a doorway and mounting the bell, buzzer and panic switch in the appropriate

The cables are then taken back to the two junction bows which terminate all the circuits and allows neat cabling between the junction bowes and the Sentiale unit itself. The Sentinel connects the cable, and also requires to be plugged into the mains for its power supply. The instructions are straightforward and exactly the same aftor any DIT system. It is the use of the supplied software that the supplied contract that the supplied software that the supplied contract that the supplied software that supplied software that the supplied software that the supplied software that supplied software that the

#### The security program

There are two modes; security and control. Although you can run the control mode on its own, the security mode incorporates both, so you can use Sentinel as an alarm system and as a control system. Unfortunately this is not made very clear in the instructions.

There are facilities to alter the parameters of the program, set the date and time and test the alarms; the parameters are normally set to the values you require and then the program stores them on tape or disk. When you next run the system these values are loaded in for use so you don't have to alter them each time. This is very handly, but the one exception to all this is the date. This has to be entered each time you run either of the main options. Even if you haven't switched the machine off and wish to reser one of the parameters, you wave to resire the contract of the parameters, you wave to resire the time and date again.

I am sure it would not have been difficult to have stored the date and use the computer clock to keep track of the time even between options. Although you don't change options that often, to keep typing the date/time spoil the otherwise well thought out menu approach, where the function keys are used to select the options.

#### Sounding the glarm

In the security mode the interface unit monitors two input channels; these can be either normally closed (nc) circuits

continued on page 110

frojer

#### continued from page 109

such as the magnetic switches, or normally open (no) circuits such as pressure mats or IR (infra-red) detectors. LEDs on the front panel of the interface show the state of each channel.

When the system is activated as events for its begun. This shows the time of activation and records all events on one of three devices. TV screen, tape or you can adjust as required) to leave the building after activation. From then on anyone opening a protected door or anyone opening a protected door of the system will sound for the period of time specified in the settings (default is 20 de-activates testifich, time the system de-activates testifich.

The delay is to allow you to de activate the system before the alarms go off when you enter the house again. There is also a night-time mode which the essigned for use when you are in the house and wish to protect yourself from forced entry. In this case there is no delay, as soon as a sensor is triggered the alarms go off. Likewise the panic switch this will activate the alarms irrespective of

soon as a sensor is triggered the alarms go off. Likewise the panic swhich, this will activate the alarms irrespective of the state of the program, provided the Sentinel interface is powered up. One good point is that the internal buzzer sounds if any protected windows or doors are open when you attempt to activate the system initially.

#### The control program

I found this slightly disappointing, There are four output channels which can be switched on or off at preset times. The settings are stored on tape or disk in the same way as the settings for the security system. You specify each of the onloff times for each channel, activate the system and it will then switch the channels as required (an LED on the front panel tights up when the channel is dights up when the channel is dight up when t

However, you can only specify one on/ off period per 24 hours on each channel; 2 on/offs per 24 hours would be much more useful and give greater flexibility to the system.

Also it cannot handle mains control without additional components such as power relays or opto-isolated triacs. Micro-Security have said they intend to produce a mains interface and this will certainly make the system more useful, although it will also put up the price.

Although there is no way of combining.

the triggering of the security sensors and the switching on of the controlled outputs with the software as it is written, the two parts work simultaneously. Thus you can have lights being switched on in the house while you are away and have the security system activated. This does not preclude you writing your own soft.



ware, of course, and you could devise your own control and input system; opening the front door could then turn on the kettle and the light rather than an ear-shattering alarm bell!

#### Drawbacks of the system

With any system which turns your computer into a dedicated controller of some sort you have to ask yourself a few relevant questions, how useful is it; does it do the job as well as a stand-alone system and is it worth the extra money? Sentinel is let down in a number of

areas: firstly, the entire system is mains powered. This can be a major disadvantage for both a security system and a control system. One glitch in the power supply large enough to trip the compute and the whole thing switches off. The 30 second delay is also time enough for the burglar to switch off the power at the mains; he doesn't have to search for the control system! Secondly, after being tripped, the security system de-activates itself. Thus if you are away for two weeks and somebody attempts a break-in two days after you leave, then even if it deters that burglar the house is totally unprotected from then on. Why doesn't the system reset itself, assuming the neighbours/police have re-secured the point of entry, and continue to monitor? (You could in fact modify the software to do this yourself).

Thirdly, the control system does nothing that couldn't be done equally well by a time-switch or two, with the advantage that the latter will not be affected by momentary interruptions in the power supply. Finally, here's an obvious point while the computer is monitoring your burglar alarm system or controlling things, you can't use it for anything else.

#### Advantages of Sentinel

Having looked at the reasons why Sentinel is not ideal, what advantages does it offer? Well, as a burglar alarm system you would be using it at times when you were either out of the house or asleep, thus putting your computer to use at times when it would otherwise be lying idle. The Sentinel unit gives you a total of two input channels and six output channels; by writing your own software you could use it in a number of control applications in a more flexible manner than the supplied software permits.

It is possible to purchase the Sentinel interface without all the security hard-ware at a cost of 589.00 (excl VAT) thus saving £30 on items you may not want anyway. (The manuals do not show how to operate the Sentinel directly, but listing the supplied software will provide all the information you need.)

Finally, using something like the Sentinel does allow you to computerise your home to a limited degree if that's what you want to experiment with. It cannot therefore be dismissed as unsuitable for any particular purpose since different people will buy if for different reasons.

#### Conclusions

Within the limitations of any system that attaches to a horse computer, the Sentialel does what it says it will do; it provides both a security system and a control function. For someone who wants to experiment with computer control and do something useful with at the same time, this is a well-made, easy to use system.

However, if you want a reliable burglar alarm to protect yourself and your property in a high risk area then you would be much better advised to invest in a stand-alone, batterly backed-up sysem which does nothing else except guard your house. Sentime is too depenmans power supply, providing battery back-up for both the interface and the computer would make it were expensive.

Although the software as supplied is perfectly usable, it would benefit from some improvements; this will not be a problem for the person who wants to experiment anyway. Overall, a useful system if you are going to use it for more than just a straight burglar alarm.

Sentinel security & control interface. \$99.00 (complete with security hardware) \$69.00 (interface & software only). Supplied by: Micro-Security, PO Box 18, Hovont. Honts PO9 318. Tel: 0705 486738.

## **TOMMY'S TIPS**

Tommy is Commodore User's resident know-all. Each month he burrows through a mountain of readers' mail and emerges with a handful of choice queries. The result, before you, is a wadge of priceless information and indispensable advice. There's even the odd useful tip as well.

Dear Tommy, I am the owner of a Vic-20 and the Vic 1515 printer, both of which behave impeccably. Last Christmas however I

also bought a Commodore 64, but not before asking whether it was compatible with the Vic 1515. Yes, I was assured, there is no problem.

is no problem. When, however, I linked the 64 to the printer, I found that the printer with printer worked all right, but the printer worked all right, with anything complicated it stopped at a different point on each occasion. As the printer still worked all right with the Vic-20, I assumed that there was something wrong with the 64, and my dealer kindly changed it. But the problem changed it is sufficient to the problem changed it. But the problem changed it is sufficient to the problem changed it. But the problem changed it is sufficient to the problem changed it. But the problem changed it is sufficient to the problem changed it is sufficient to the problem changed it. But the problem changed it is sufficient to the problem

Persistent enquiries produced a magic phone number, which when I rang up I was told that the VIc-151 s meant for the VIc-20 really. If I want to use it with the 64, before OPENing the logical file I must POKE \$3285,11 to invalidate the screen, and after CLOSKing the logical file I must POKE \$3285,11 to hring the screen of the VIC-151 to bring the screen with the vice instructions, and the printer has worked almost without problem.

without problem. Since then however I have scrutinised every item of literature I could find including "Commodore User", but I have never found this instruction about POKEing. Is there any reason for this – which means is there anything wrong with my equipment?

This is due to a timing problem on the 6.1 The Vis-OB perspherals, the 150 and 1515 etc. all suffer from the same problem: the denote gate out of step with the computer due to the increased work that the 64 has to do in Keepling the screen up-to-date. That is the reason the howe 1541 dails and 1535 printer were produced, they both have new 1500s which takes account of this completely immark the 1541 dails together for example Commodore offered a new 2500 commodore offered a n



(at a cost of \$25) to owners of the 1540 drive who wanted to use it with the 64. To my knowledge they have not produced one for the 1515. Turning the screen off is not an elegant solution, but the only other one is to sell your 1515 and upgrade to a newer printer.

Dear Tommy, I am very confused about an advert for the ZX Spectrum put in a Sunday magazine. In the advert it said "The Spectrum gives 41.5K of usable memory, more than costlier computers such as the Commodore 64 or BBC model B. So you can run higger and better programs". I thought there was a mistake as the Commodore is 64K and the Spectrum is 48K. Please would you tell me if this is correct? I think a lot of other people will be confused and won't know which computer to buy

This is a classic example of companies toiling people only half the story. The advert is perfectly correct if you take the amount of memory available to Basic. The Spetrum has 41.5% while the Commodore 64 only has 38.5%. This is because there is a large area of memory reserved for cartridges and the operating system etc. However, this is not the whole story because the story of the story of the story of sociol of programs you are going to be running.

completely immune; try using two much as 54K available for a 1541 disks together for example! machine code program, because Commodore offered a new ROM the area reserved for the Basic

ROM etc can be switched out to make the memory available for use. The Spectrum cannot do this so a machine code program on the Spectrum is still limited to 41.5K. In practice I doubt whether this

an paractive i oblight windfulfer than the paractive in the paractive in the paractive in the less you are oping to be running some large database programs where available memory starts to become important. I suggest you should look at what you can affort do what you want?), is reasy to use and are the add on a swalable and reasonably priced. Come up with a shortfall of comporters and then go shortfall of comporters and then go you will find this a much better method of deciding on a compuser than seeing which machine has the buggest byself.

Dear Tommy, Help! I won a Vic-29 starter pack some months ago in a competition and it has since developed a fault. As the unit is less than twelve months old, no problem you might think, but as I have no receipt none of the dealers near me want to know, so I rang Commodore but they say meed proof of purchase. Catch

I have now given up, I would like your advice as to the possible cause and probable cost (I know it's a lot to ask but

I do have great faith in you).
The fault occured while running a small game during which time the program appeared to crash locking up.

the run'stop, restore etc. All this time the TV picture was showing. To clear the computer I switched off and on switching back on, the initial picture shock on, the initial picture stays black and at the same stays black and at the same time the CLR key is disabled completely. The fuse inside the Vic appears to be ok as the neon lamp glows when I switch on. Any ideas.

I am afraid your fault could be due to a number of things, some easy to trace and rectify and others much more difficult. To get it repaired through a Commodore dealer will probably cost around £25 since most dealers make a shipping/handling charge of around \$7-\$10 Why don't you write to the runner of the competition and get them to send you a letter confirming when you won the prize and then use that to try to get it repaired by Commodore. Failing that, there are a number of independent companies who repair computers. While I cannot recommend any particular one, since I haven't used them, Trident Enterprises advertise in Commodore User and charge £12.50 + parts; their phone number is 07E2 4970E

Dear Tommy, Could you please answer the following questions? I'm thinking of buying an Epson RX-80 F/T printer to use with my Commodore 64. Do I need any additional hardware or software besides the printer

before I can use it?
Secondly, do you consider
the Epson RX-80 F/T to be good
for the price or have I made
the wrong choice?

You will need a cable plus some form of interface to convent the Commodore output into the Centronics parallel interface format which the Epson printer user. This can be either software interface which converts the User-port into a parallel printer port, or a hardware interface which plugs into either the serial port (like a normal Commodore printer) or into the User-port, some event of conversions of the control characters to give read-the characters to give read-the control characters to give read-the characters to give read-the control characters to give read-the characters to give read-the control characters to give read-the characters to give re



modified commands and functions have been added and because they have not been fully tokenised, the speed of operation is not affected. Abbreviations may also be used. The

main areas of enhancement are: HI-RES, SPRITES, TEXT GRAPHICS, UDG. SOUND, MACHINE CODE AIDS. STRUCTURED PROGRAMMING, I/O and

more. For full spec. call £57.50 inc. VAT us on 073 57 4335

See us on PRESTEL \* 2473222 # Telex 849462 TELFAC KUMA COMET KUMA TELECOM GOLD KUM 691

#### PAINTPIC

The complete colour drawing and painting application using multi colour bit map. This outstanding program features

Pen. Brush and Text Modes: Curved Shapes: Straight Shapes: Pen and Brush Fills; Settable Colour; Horizontal, Vertical, Diagonal, By Dot, Brush Width, Character Moves: Point Moves: Block Moves.

No extra hardware items are needed beyond the basic computer, tape drive and colour TV.

Send for full brochure £19.95 inc. VAT



PHONE NOW (073 57) 4335

or SEND FOR DETAILS Please tick box CHADO A required, and send coupon to Kuma Computers Ltd SAGE 68000 System

shoe Road, Pr RG8 7JW EPSON MY-20 COMMODORE 64 SPECTRUM SHARP PC 1500 ELECTRONIC MAIL SHARP 700 PRINTERS

----------------

Prices range from about £24 for | tic strings, you change the order of the Stack software interface to £90 the elements of an array that 'point for the Impex hardware interface. to the strings. The following short Other interfaces include the Vic- program will demonstrate this sprint and Comprint at £50 and £62 method: respectively. All of these come with a suitable cable, but if you try any others check to ensure it does include a cable

You will not go far wrong with an Epson printer. While there are similar and possibly cheaper machines available. Epson have a reputation for reliability. I use an Epson at home and at work enough said?

Dear Tommy, Have you any ideas on a small program, that will give me a list of eleven numbers, at random, where none of the numbers are the same in any one block of eleven?

I read with interest your tips on Commodore machines each month, my only comment being that there is not enough of

You need to declare an array of eleven elements and then store the random numbers as they are selected. It is then a simple matter of checking the numbers you have already got and rejecting the new number if it is the same. The following short program will give you eleven random numbers between 1 and 100 with no repeats (it will work equally well with numbers

10 DIM RN(11) 20 FOR A=1 TO 11

30 N=INT(100\*RND(1)) + 1: FLAG = 0 40 FOR B=1 TO A-1 50 IF RN(B)=N THEN

FFLAG=1: B=A: REM IF REPEAT THEN SET FLAG AND END LOOP 60 NEXT B 70 IF FLAG=1 THEN 30: REM

SELECT NEW NUMBER IF REPEAT 80 RN(A)=N: NEXT A 90 PRINT"<CLR>

100 FOR A=1 TO 11: PRINT RN(A): NEXT A 110 END

Dear Tommy, Can you explain how to do multiple sorts? For example, how to sort a group of approx 200 people into 6 categories, and then re-sort each category into Alpha/Num order without mixing the categories up again? I hope you can resolve this

query.

Multiple sorts are best done using pointers. This means that instead of changing the order of the alphabe-

10 MAX-10: DIM CAT(6,MAX), NAMES (20)

FOR A=1 TO 6: FOR B=0 TO MAX 30 CAT(A.B)=0: NEXT B.A:

REM CLEAR ALL ELEMENTS OF ARRAY 40 FOR A=1 TO 20

50 READ NAMES(A) 60 C=VAL (RIGHTS (NAME\$(A),1)): REM FIGURE AT END

DETERMINES CATEGORY 70 IF CAT(C,0)-MAX THEN PRINT "OVERFLOW IN CATEGORY"; C:GOTO 100

80 CAT(C.0)=CAT(C.0)+1: REM INCR NO OF DOINTERS HELD

90 CAT(C,CAT(C,0))=A 100 NEXT A 109 REM LINES 110 TO 160 ALLOWS YOU TO CHECK CATEGORIES ON SCREEN

110 INPUT WHICH CAT"X 120 IF Y 0 OR Y 6 THEN END 130 FOR A=1 TO CAT(X,0)

140 PRINT NAMES(CAT(X.A)) 150 NEXT A 160 GOTO 110

200 DATA FRED1, GEORGE3, ARTHUR1, MIKE2, SUE4, ANNS, WENDY4, KAY6, MARGE4, TULIE4

210 DATA BOB3, TOM3. CHRISI, BERT2, IOHN2, MABLES, FLOS, JENNY4.

PAM6, JOSIE6 You now have six rows of numbers, each number refering to the corresponding string in NAMES. By refering to the array as NAMES (CAT(X.Y)) you can now do a sort on any category, without mixing them up again, by changing the order of the numbers in the relevant row of CAT. The Oth element of each row of CAT gives you the total number of elements in that category. If you wish to access the strings in a number of different orders then just declare more arrays like CAT. This will also be considerably faster than moving the strings about, since you will not suffer from the dreaded garbage col-

> Send your queries to: **Tommys Tips** Commodore User. Priory Court 30-32 Farringd

## CLASSIFIED

16K Vic-20 16K RAM pack Games, £20. Magazines, books. Penkhull Stake-on-Trent, Staffs 5T4

Commodore 3032, 3040 dual Assembler software, Bargain \$600. Tel: Brighton (0273) 771577

Vic-20 unexpanded with C2N 130. Apply: Vogt, 10 Hunt Road. toole, Dorset BH15 3QD.

Printer. Shinwa CP-80 serial dat in competition. New condition, £170. Brookwood 87774.

Disks downunder - C64 Woleck, 8 Delbridge Street, North

#### WHICH

COMMODORE BOOK? Free book catalogues of independently selected Cor dore books. Subscriptions bring latest selections and savings.

DERTO COMPUTER & ELEC-TRONICS EDUCATION. 233-243 Wimbledon

London SW18 5RJ Vic. C2N, 16K switchable RAM. as new condition, £120. Phone

At last! Economical, bi-dir RS232 printer or modern connection rinter of modern connections rice – just \$29.95 Inc VAT, P&P.

CBM64 programs to swap. Only Berglund, Sparregatan 15, 39230

32K Vic user group where are you? J Collins, 92 Grove Hill, London E18, 01-989 1277.

All 1541 users should join Club64, the international user

group. For details of our excellent public domain software library contact: Brendan Conrov. 85 Upper Drumcondra Road, Dublin

Vic-20/CBM64 Software Hire

VSH(CU), 242 Ransom Road Mapperley, Nottingham. Vic-20 Word Processor, Victori cilities include - Large text move fext, word count, right

justify, etc. Fully menu driven with Vic-20 Data File. Takes the place of any card index

acilites include - save logatile

Attention all Vic-20 and C8M64 users. Whether you're a dealer. user group, individual or software library, do you really know what commercial software there is for the Vic and the C8M64? Well it's taken us ages to come up with the document, it covers games. utilities, education, books and busines software. It gives

descriptions, hardware, price. independent ratings and delivery as n send chear ie/PO Cement's Information, Box 015.

For sale. Vic-20 carridges Castle, \$5 each or \$9 both, Will swap either for Pirate Cove. Kirkleatham Lane, Redicar

Vic-20 for sale Vic-20, C2N agazines. Quick sale 590. CBM books, Machine Code Master 55.50, The Working CBM64, 54.50, The CBM64 Program Book 53.50, Games for the CBM64. Tel: Northwich 782475

CBM64 possible penpal to swap. Send your list to Danielssen, Asveien 20, 4620 Vagsbygd, Norway

Solutions to Scott Adam ventures (1-5), £1 each, Send sae to Martin Wright, "Alma" Clicennin, Lampeter, Dyfed. Winles SA48 80H Tel: 0570 470362. Name solution required

Swap, Hackers from the land software and info. Hundreds of good titles. Send list to: Nigel oss, PO Box 219, Morley 6062 Perth. WA. Australia

CBM64 owner has more than progs and wants to swap them. Please send your list, only of high quality software on disk to: Leo Rieser, Via Piffetti 27, I-

Home Accounts. Put your house in order! Probably the best home Comprehensive coverage of etc. Inbult accuracy check 20 and Commodore 16, \$8.45 or free details from: Discus Software Freepost, Windmill Hill, Brixham TQ5 98R. Tel: 080 45 55532

Vic-20 & CBM64 software for sale. All originals, good prices, mostly UK, some USA. For large graded lists please send sae to John Keogh, 30 Highwood Avenue, Finchley, London N12

Vic-20, C2N recorder, Quickshot Scramble, Galaxians, plus more games, 3K Superexpander artridge game, book (Learn Computer Programming), manuals, dustoovers, \$270 Phone 01-471 7877 after 5c

Vic-20 only £50 including cartridges and manuals. Ve 16K RAMpack £15. Eighteen original games and utilities £15 Telephone Steve on Brentwood (0277) 213157 after 7pm.

CBM64, C2N cassette, 1020 fer platter books magazines lots of software, vgc, sell £360 or swap 88C '8' with DFS, Write A Simm, 67 Kings Avenue, Flint, Clwyd CM6 5,IS.

Gasilit-64, graphics/sprites musical package for C8M64 Unwanted gift. Many new commands: save pictures/tunes to tape. Send cheaue or PO. Road, Tunbridge Wells, Kent

Vic-20 cassette C2N, Super Basic 2, \$50 worth software books on graphics etc. All £150. N Gillon, 123 Nicholson Street, Edinburgh EH8 9ER. Tel: 031 667

Yog Limited, a strategy game for Commodore 64. You control a voghurt making company Features sprites, sound and turbo load, only \$2.50. Contact Ion, 48

MPS 801 printer brand new unused, unwanted, quick sale 950 onc. 81 Harrow Drive, Edmonton N9 9EQ. 01-807 1930 evenings

Vic-20, C2N, £60; Stack Light Rifle, 3 games, £15; Stack Motherboard £15 Programmer's Aid Cartridge £10, Intro to Basic 1, £7; Programmer's Reference Guide 65 Phone 0405 4313

Vic-20 plus 16K, C2N cassette unit and extensive software including four Llamasoft titles one year old, excellent condition, can Interested? Ring Beaconsfield Bucks (04946) 4630.

CBM64 software to swap, many Contact Garry on 051 487 3262 or 22 Daunstey Mews, Bellevale Liverpool L25 2TG, Especially

CRM64 software to exchange including many American titles Disk only. Most interested in adventure games. Send your list to O Baldomero, Ryffstrasse 21,

Vic-20 plus C2N cassette deck Intro to Basic 1, many games baxed, £65 ano, Tel Brentwood

Vic-20 16K RAM four cartridges including Gorf. Twenty one games including Flight Path 737 Dungeons, Dark Dungeons, all by Anirog and others produced by them. Sell for £120.00. Phone Caunton 452 after 6pm and ask

Vic-20 8/16K Hi-Res drawing Superexpander) 176x160 pixels. Draw(m/c) point(m/c), circle, elipse, spiral triangle, square, joystick functions Store drawings on tape, 1520 printer, and in memory (16K) Tape with machinecode routines, demo programs, sample drawings/maps, plus instructions for £2.50 from: A Blomberg, 134 Aldebury Road, Maidenhead SL6

## Ad-Index

Adamsoft	107	Level 9	68
Anger	89	Logic 3	35
Audiogenic	OBC	Melbourne House	42 & 43
BSF	41, 84	Micro de bug Consultancy	102
Beyond	81, 97	Microgen	26
Brother	IFC	Micromega	10
Bubble Bus	95	Micronet	74, 75, 76
Calco Software	88, 102	Midland Computer Library	102
Cheetah Marketing	5	Mirrorsoft	3
Chromasonic Electronics	73	MPS	86
Consolidated Software	9	Munday & Roberts	86
Computerama	83	Musicalc	95, 101, 102
Creative Sparks	12, 33	New Generation Software	30, 31, 47
C&VG Book	34	Ocean Software	101
C & VG	97	Oxford Computer Systems	51
Digital Intergration	27	Paradox	63, 64, 65, 66
Doctor Soft	36	Precision Software	106
E & CM	82	Simple Software	101
Educational Computing	82	Software Library	86
Electronic Aids	89	Solar Software	25
Evesham Micros	107	Sophisticated Games	34
First Publishing	49	Stack	90, 91
Hago Products	19	Statesoft	4
Handic	78 & 79	Stonechip Electronics	67
Impex Designs	96	64 Plus	88
Infrascope	89	Taskset	3TBC
Interface	106	The Six Four Supplies Company	14
J & J Gilmour	101	The 64 Software Centre	50
Jansen Electronics	96	Ultimate	92
Jetsoft	51	Unisoft	98
John Wiley	18	US Gold	56, 57
K-Tel	17	Which Micro Book	34
Kuma Computers	112	Whitby Computers	46
Learning to Cope	97	Zoomsoft	86



Commodore User is published twelve times a year by EMAP Business and

Subscriptions and Back Issues are handled by B.K.T. Subscription Services. Dowgafe Works, Douglas Road, Tonbridge, Kent TN9 2TS, Telephone 0732-Annual subscription (LK) \$12.00, (Eire) \$IRL 17.00, (Europe) \$18.00, (Rest of

Printed by Garrod & Lotthouse Ltd, Crawley; Photosetting by PDQ, London N10, telephone 01 444 0359; Reproduction by Elan Litho Ltd, London EC2. Distributed by Associated Newspapers. Material is accepted on an 'all rights' basis unless otherwise agreed.

Enclose SAE if you want the return of original manuscripts and photographs. All material © copyright Commodore User 1984 and contributors. No part of this issue

are interested in copyright Commodation (see India and contribution, this part of this sea may be reproduced in any term without the piet or consent in writing of the publisher other than short execute guarantees of severe and duty oracined. The publishers do not in accessible guarantees with the views decreased by combitations and assu-nation publishers do not in reproduction or interpretation in the subject matter of this magazine or only wells during the reterm.



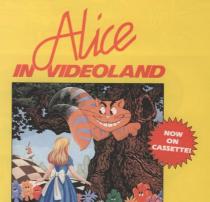


# CAM



MARRIOR

commodore 61 £9.95



#### PURE MAGICI

Join Alice in her journey through Videoland - an enchanted place populated by strange creatures such as bread-andbutterflies and pipe smoking caterpillars; where little girls change size and flamingos turn into croquet mallets!

Alice in Videoland is a revolutionary new concept in entertainment for the Commodore 6A, incorporating some of the finest graphics ever seen on any home computer, accompanied by a chaming musical socre. There are four different eyour reinvolved, and your performance in earlier ones will affect your ability to get through later ones and determine your eventual total score.

Scene One - Stunning title page graphics give way to the first game scene as Alice falls into the rabbit's warren. Score points for collecting the objects to be found there - including keys to open doors, bottles to make her smaller, cakes to make her bigger!

Scene Two—Out in the garden the Cheshinic cat books on as Alice meets the pige-smoking caterpliar. Help her to atch the bread and-butterflies and the noticing-horse files that change into the balls used in the copute game in the least scene of the season of the season

Scene Four -The most bizarre croquet game everl Help Alice hit the balls through the playing-card-soldier hoops before the Queen of Hearts stomps on them!

Alice in Videoland is available for the Commodore 64 on disk - £12.95, and now on cassette - £8.95. Alice in Videoland features graphics created with the Koala Pad.

